

# Appendix B

## Airport Capacity Design Team Project Summaries

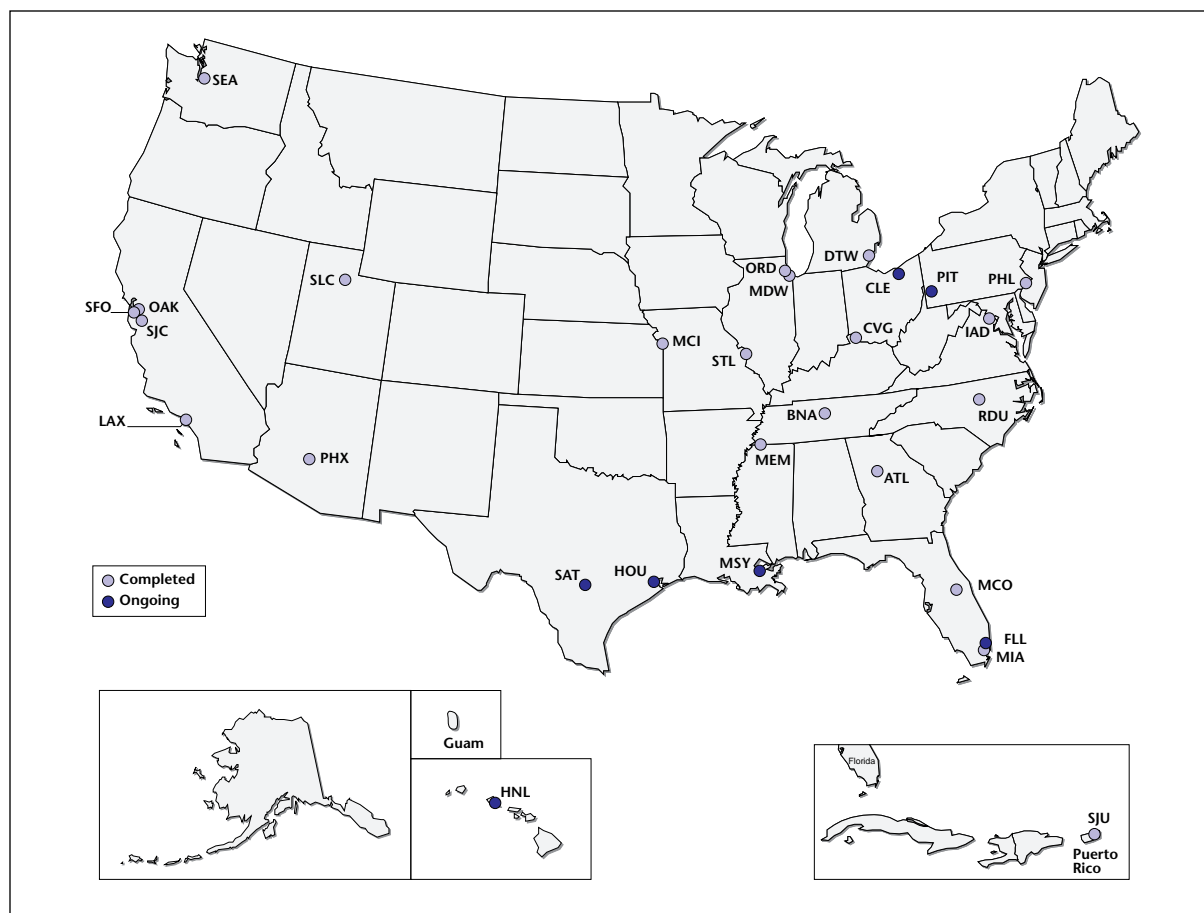
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The Airport Capacity Design Teams identify and evaluate various actions, which, if implemented, would increase capacity, improve operational efficiency, and reduce delay at the airports under study. The Capacity Teams examine proposed alternatives to determine their technical merit. Environmental, socioeconomic, and political issues are not assessed. These issues will be addressed in other airport planning efforts, like the master planning process.

For those airports where the Airport Capacity Design Team has completed its study, the project summaries and airport layouts contained in this appendix document the capacity improvement alternatives included in the final report. They have not been updated to include any subsequent changes at the airports. For those airports where the Capacity Team's analysis is still in progress, the proposed capacity improvement alternatives listed may well change as the study evolves.

The following capacity teams were recently initiated, and initial recommendations had not been finalized at press time: Cincinnati, Honolulu, New Orleans, San Antonio, Ft. Lauderdale, Houston, and Cleveland.

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### Legend

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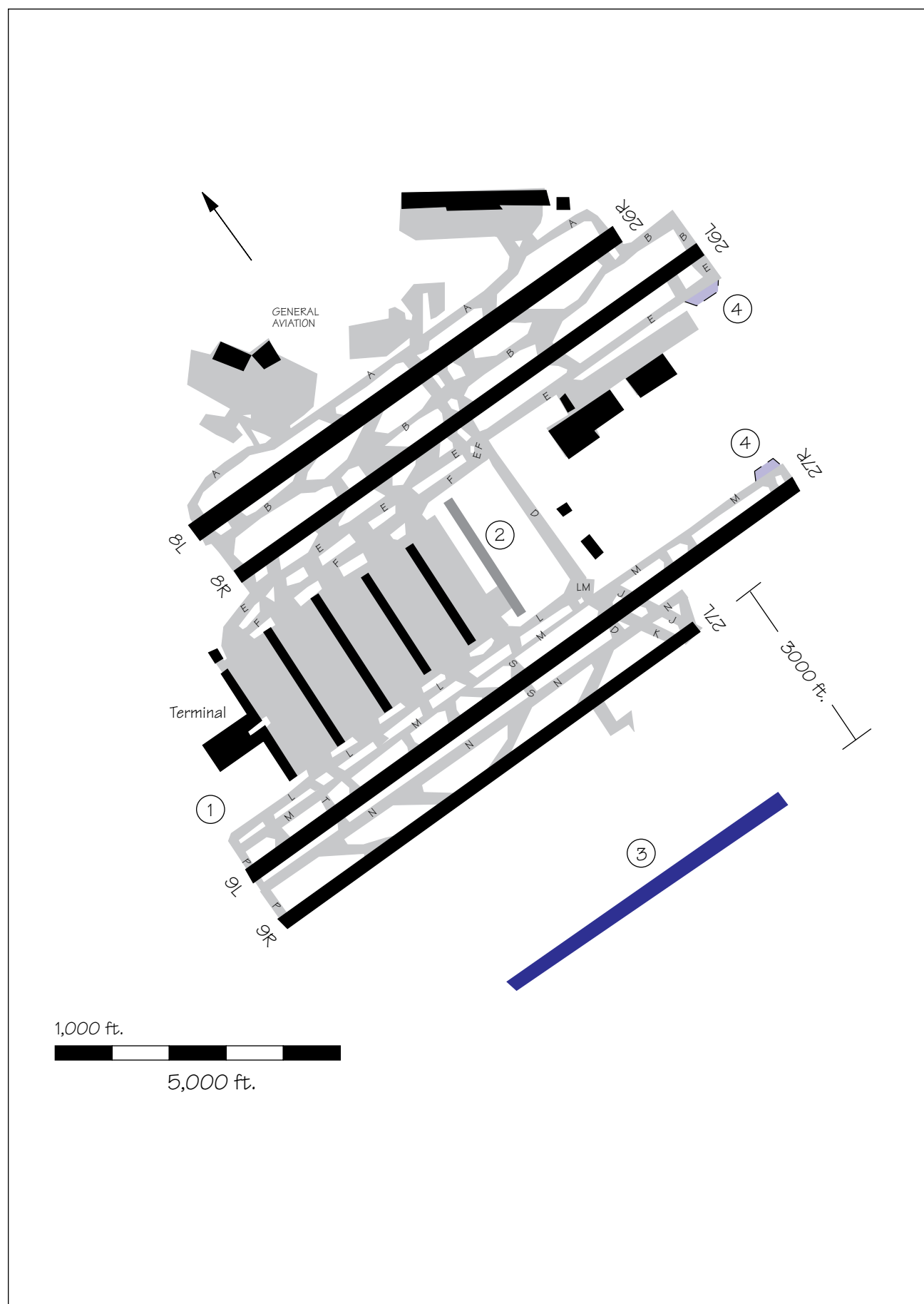


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-  Existing Runway
-  Existing Taxiway/Apron
-  Proposed Runway/Runway Extension
-  Proposed Taxiway/Apron/Facility Improvements
-  Buildings
-  Numbers are keyed to alternatives listed in Airport Project Summary

*Note: Some buildings/structures may have been removed for clarity.*

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# Atlanta-Hartsfield International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. International concourse
2. Fifth concourse
3. Commuter/GA terminal and runway complex south of Runway 9R/27L
4. Three hold pads/bypass taxiways at end of departure runways
5. Taxiway C parallel to the west of Taxiway D

### Facilities and Equipment Improvements

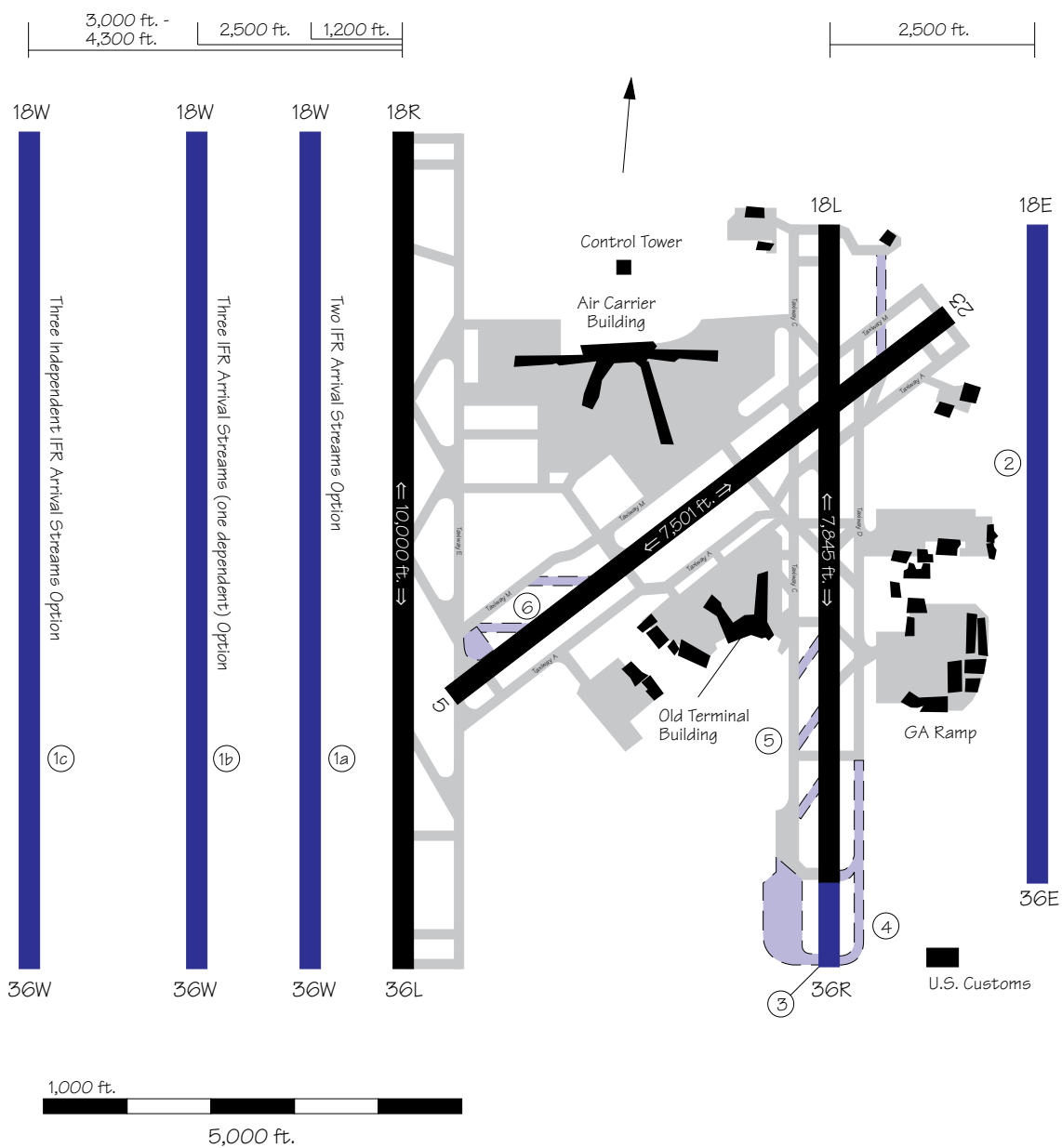
7. Expedite development and installation of wake vortex forecasting and avoidance systems
8. Upgrade NAVAIDs and approach lights on Runway 26R and 27L to Category II
9. Update terminal approach radar
10. Upgrade RVR system to CAT IIIB and ICAO standards
11. Install ASDE-3 with tracking
12. Install touchdown zone lights on Runway 27L
13. Precision Runway Monitor (PRM)
14. CAT III ILS

### Operational Improvements

15. Reduce arrival separations to 2.5 nm
16. Enhance traffic management procedures

### User Improvements

17. Depeak airline schedules within the hour
-



# Charlotte/Douglas International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Build third parallel runway, Runway 18W/36W
  - 1a. Two IFR arrival streams
  - 1b. Three IFR arrival streams (one dependent)
  - 1c. Three IFR independent arrival streams
2. Build fourth parallel runway, Runway 18E/36E
3. Extend Runway 36R further south
4. Extend Taxiway D full Runway 18L/36R length
5. Build angled exits off Runway 18L
6. Build angled exits off Runway 23
7. Construct departure sequencing pads at runway ends
8. Install centerline lights on Runway 5

### Facilities and Equipment Improvements

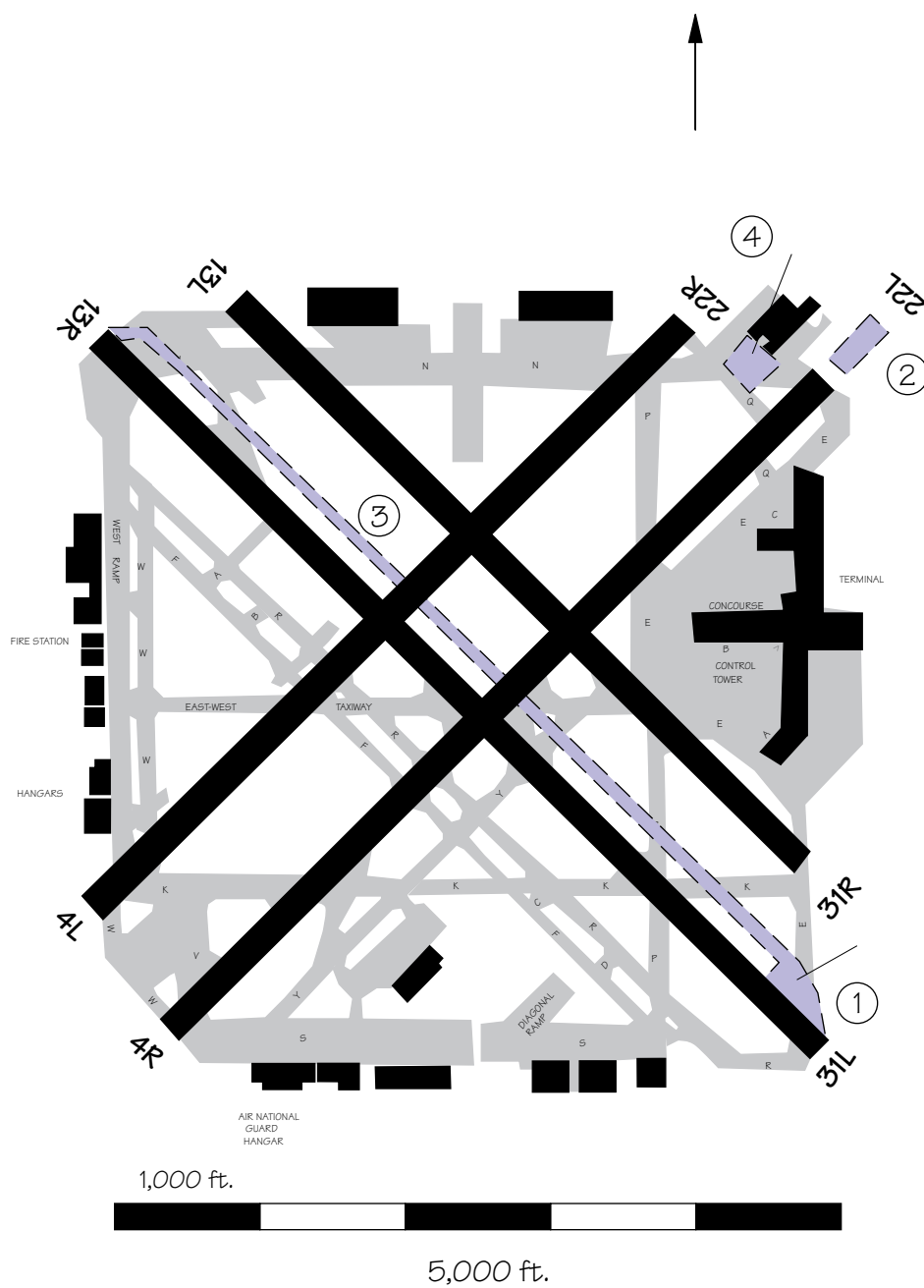
9. Install Category I ILS on Runway 23
10. Install Category II/III ILS on Runway 18R
11. Install Category II/III ILS on Runway 18L
12. Install Category II/III ILS on Runway 36R
13. Install Airport Surface Detection Equipment (ASDE)
14. Expand the Charlotte TRACON and ARTS-IIIA
15. Acquire the Aircraft Situation Display (ASD)
16. Install Precision Runway Monitor (PRM)
17. Install approach light system on Runway 18L and Runway 23

### Operational Improvements

18. Waiver to conduct intersecting runway operations with wet runways
19. Increase Charlotte tower satellite control positions for departures
20. Identify departure restrictions

### Other Improvements

21. Improve reliever airports (reduce GA by 50%)
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# Chicago Midway Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

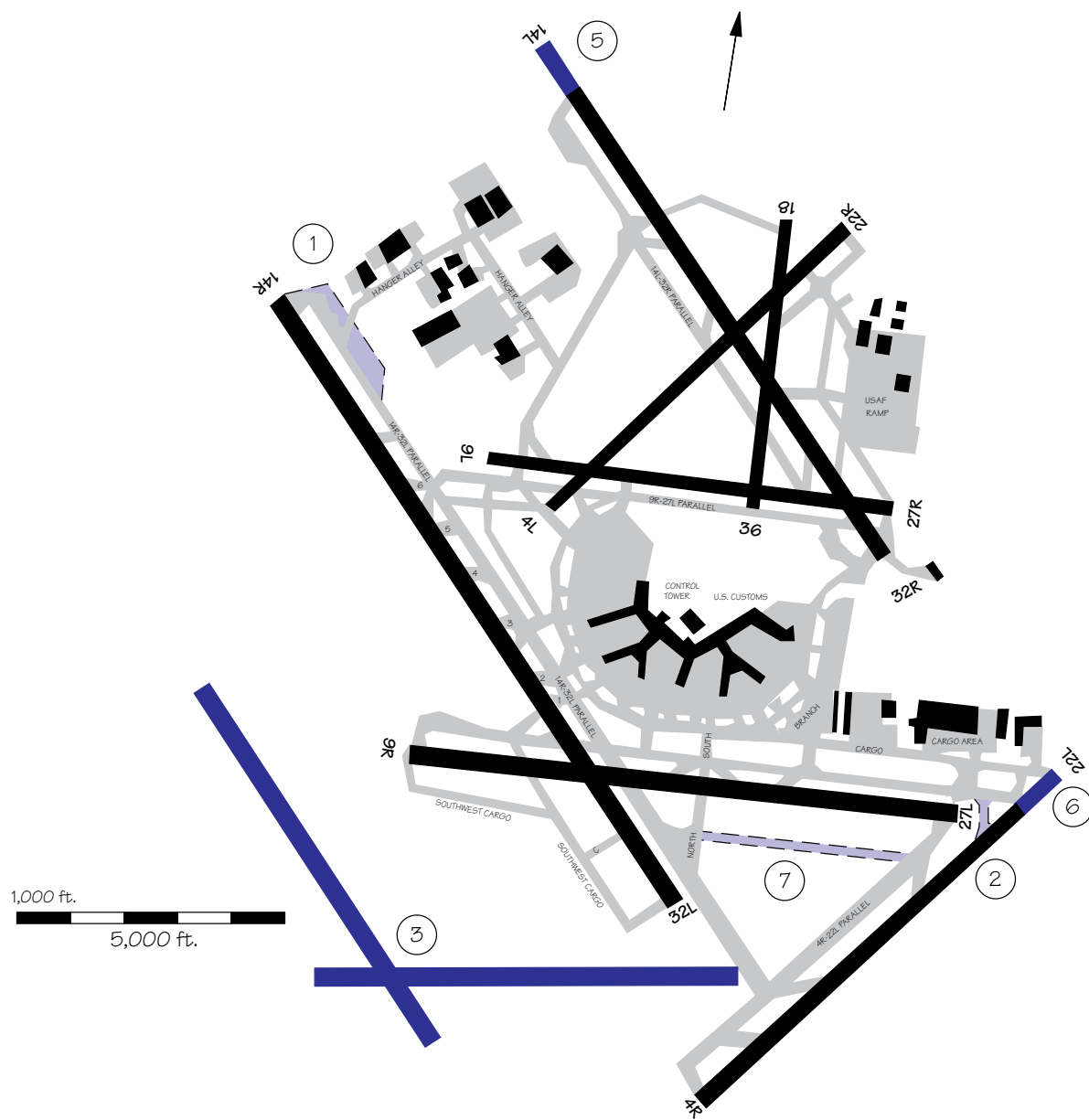
1. Runway 31L hold pad
2. Extension to Runway 22L
3. Parallel taxiway between Runways 13R/31L and 13L/31R
4. Runway 22L hold pad
5. Expand apron/gate area
6. Rehabilitation of Runway 13L/31R
7. Reduce arrival minimums for Runways 4R and 31L
8. Commission general aviation Runway 13/31

### Air Traffic Control Operational Improvements

9. Intersecting runway operations
10. Silent release departures
11. Dual approach procedures to Runways 31L, 31R, 4L, and 4R
12. Straight-in approach to Runway 22L
13. Meig's instrument approach capability

### Research/New Technology Improvements

1. Reduce/eliminate miles-in-trail restrictions
  2. Examine flow control procedures
  3. Reduce aircraft separation criteria
  4. Examine Chicago airspace organization
-



# Chicago O'Hare International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

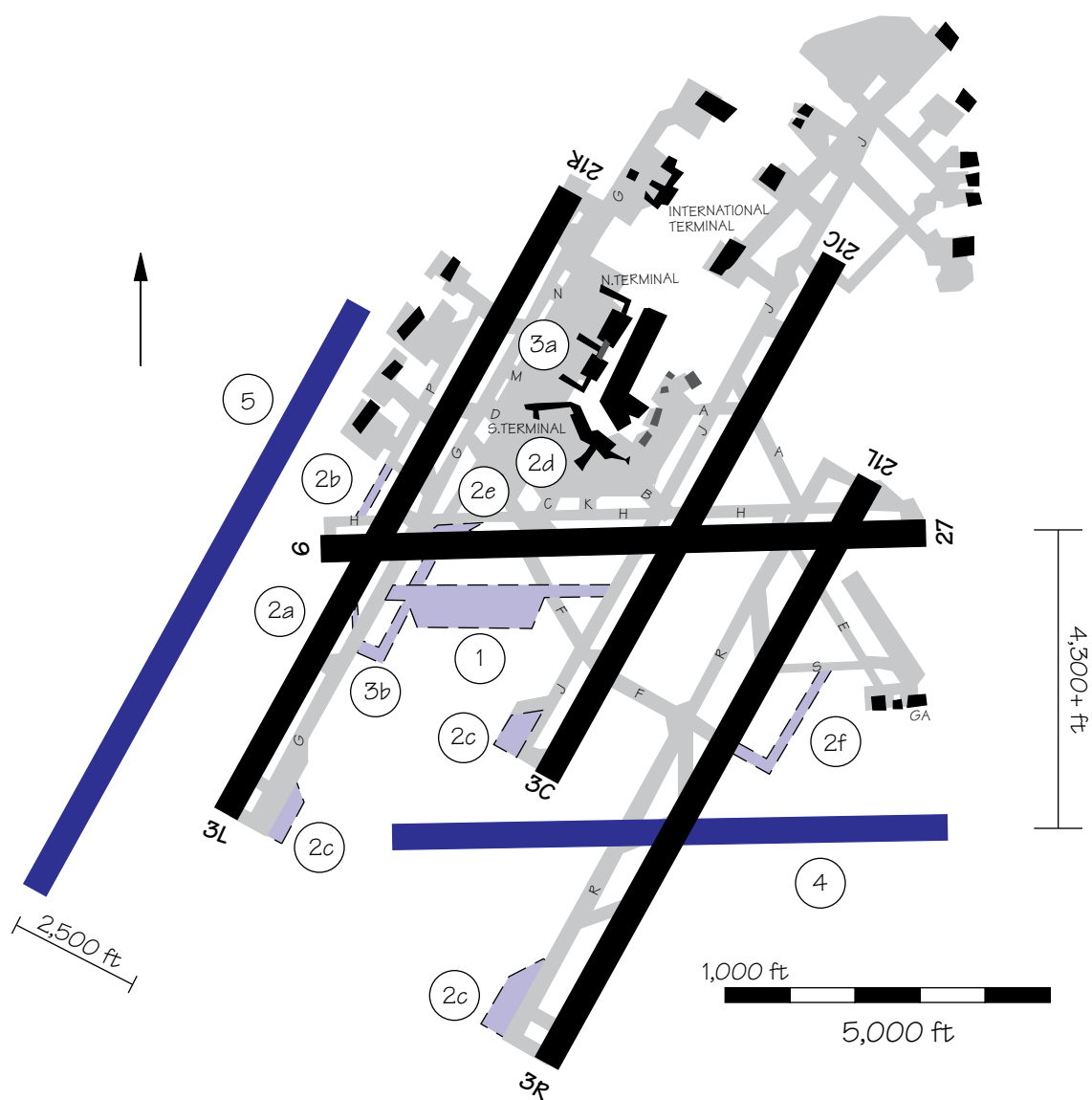
1. Large flow-through aircraft holding areas (“Chicago hold pads”)
2. Runway 4R angled exit
3. New Runways 14/32 and 9/27
4. Northward relocation of Runways 9L/27R and 4L/22R
5. Extension to Runway 14L
6. Extension to Runway 22L
7. Southern Runway 9R/27L parallel taxiway
8. Additional Category II/III approach capability

### Air Traffic Control Operational Improvements

9. Triple converging instrument approach procedures
10. Intersecting wet runway operations on Runway 14L
11. Independent triple IFR approach procedures

### Research/New Technology Improvements

1. Reduce/eliminate miles-in-trail restrictions
  2. Examine flow control procedures
  3. Reduce aircraft separation criteria
  4. Examine Chicago airspace organization
-



# Detroit Metropolitan Wayne County Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Holding apron and taxiway south
2. Runway and taxiway improvements
  - 2a. High-speed exit taxiway - Runway 21R to Taxiway Y
  - 2b. Extend Taxiway Z to Taxiway V
  - 2c. Construct and expand holding aprons at Runways 3C, 3L, and 3R
  - 2d. Extend inner taxiway parallel to Taxiway H
  - 2e. Construct exit taxiway - Runway 9/27 to Taxiway H
  - 2f. Construct Taxiway S to east GA area
3. Terminal improvements
  - 3a. Terminal expansion
  - 3b. Mid-field terminal
4. Construct independent crosswind Runway 9R/27L
5. Construct independent fourth north/south runway

### Facilities and Equipment Improvements

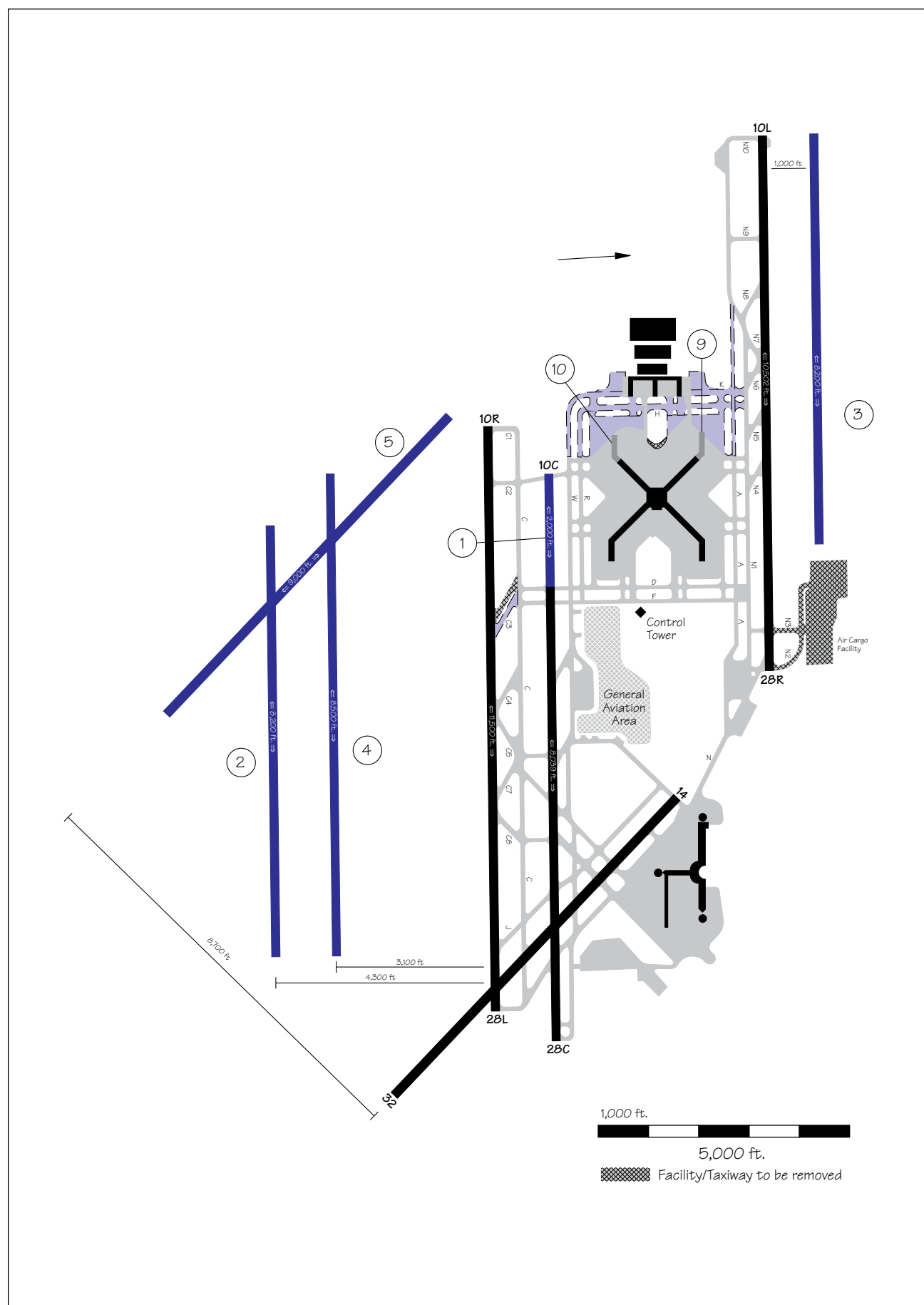
7. Upgrades on Runway 3C
  - 7a. ILS, MLS, and approach lights on existing Runway 3C
  - 7b. RVR for existing Runway 3C
8. ASDE
9. Terminal Doppler Weather Radar (TDWR)
11. RVR and centerline lights on Runway 27
12. Expedite development and installation of wake vortex forecasting and avoidance system
13. Install an airport VOR

### Air Traffic Control Improvements

14. Independent converging VFR/IFR approaches to Runways 27 and 21R, hold short of Runway 21R
15. Add controller positions, establish STAR routes, relocate MOTER intersection
16. Use departure corridors
17. Realign Cleveland Center sector airspace
18. Expand tower en route program
19. Reduce arrival longitudinal separation to 2.5nmi
  - 19a. Runway occupancy time reduced 10%
  - 19b. Runway occupancy time reduced 20%
  - 19c. Runway occupancy time reduced 30%

### User Improvements

20. Relocate general aviation traffic users
  21. More uniform distribution of scheduled operations within the hour
-



# Greater Pittsburgh International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

#### Runway Extension

1. Extend Runway 10C/28C 2,000 feet west

#### One New Runway

2. Build 8,500 foot independent south parallel runway 4,300 feet south of Runway 10R/28R
3. Build 8,200 foot north parallel runway 1,000 feet north of Runway 10L/28R
4. Build 8,500 foot dependent south parallel runway 3,100 feet south of Runway 10R/28L
5. Build 9,000 foot crosswind Runway 14R/32L 8,700 feet west of Runway 14/32

#### Two New Runways

6. Build north and south parallel runways
7. Build two south parallel runways, 3,100 and 4,300 feet south of Runway 10R/28L
8. Build south parallel and crosswind runways

### Terminal Area Improvements

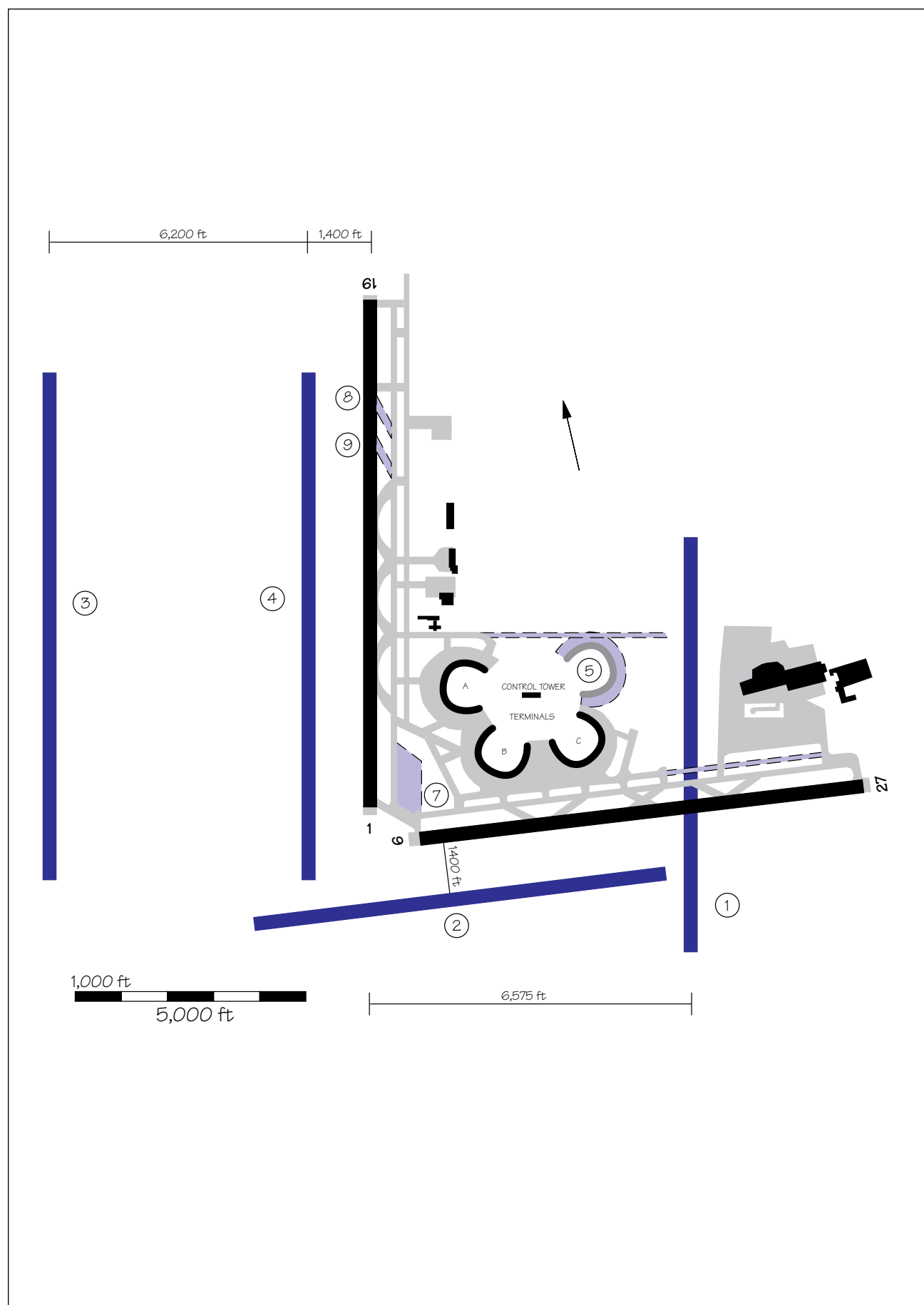
9. Add new gates to northwest finger of new Midfield Terminal and improve Taxiway H to Taxiway R
10. Add new gates to southwest finger of new Midfield Terminal and improve Taxiway K from Taxiway W to A

### Facilities and Equipment Improvements

11. Upgrade Runway 10R to CAT II/III ILS
12. Install Precision Runway Monitor (PRM)

### Operational Improvements

13. Conduct an airspace capacity design project and re-structure terminal airspace
-





# Kansas City International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Independent 9500' Runway 1R/19L
2. Dependent 10,000' parallel Runway 9R/27L
3. Independent 10,000 parallel Runway 18R/36L
4. Dependent 10,000 parallel Runway 18L/36R
5. Add fourth terminal
6. Extend Taxiways B and D to Taxiway H
7. Build holding aprons west of Terminal B
8. High speed exit at A2 for Runway 1L
9. High speed exit at A3 for Runway 19R
10. Extend Taxiway B5 to Runway 19R for GA
11. High speed exit between C5 and C7 for Runway 27R

### Facilities and Equipment Improvements

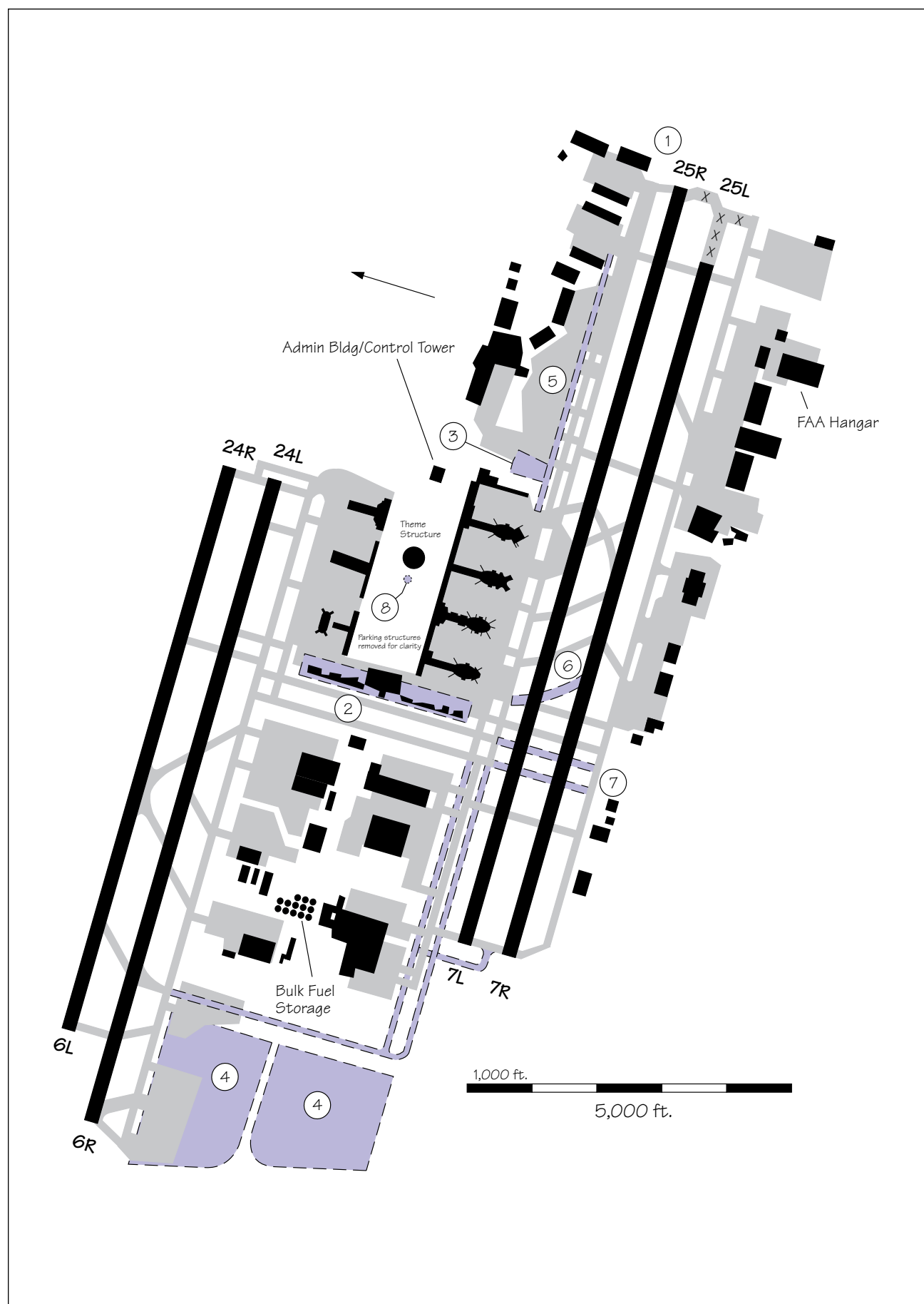
12. CAT III ILS on Runway 1R
13. CAT I ILS on Runway 19L
14. Install ILS/MLS for Runway 27R
15. DME for Runways 1L/19R and 1R/19L
16. RVR for Runway 1R/19L
17. Upgrade Runway 1L ILS to CAT III
18. Benefit of ASDE

### Operational Improvements

19. Simultaneous converging instrument approaches
20. Impact of terminal service road
21. Impact of perimeter service road
22. Effect of noise restrictions
23. Effect of ARSA separations within the TCA

### User Improvements

24. Uniformly distribute scheduled commercial operations within the hour
  25. Reduce ROT through pilot and controller education
  26. Reduce longitudinal separations to 2.5 nm
-



# Los Angeles International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

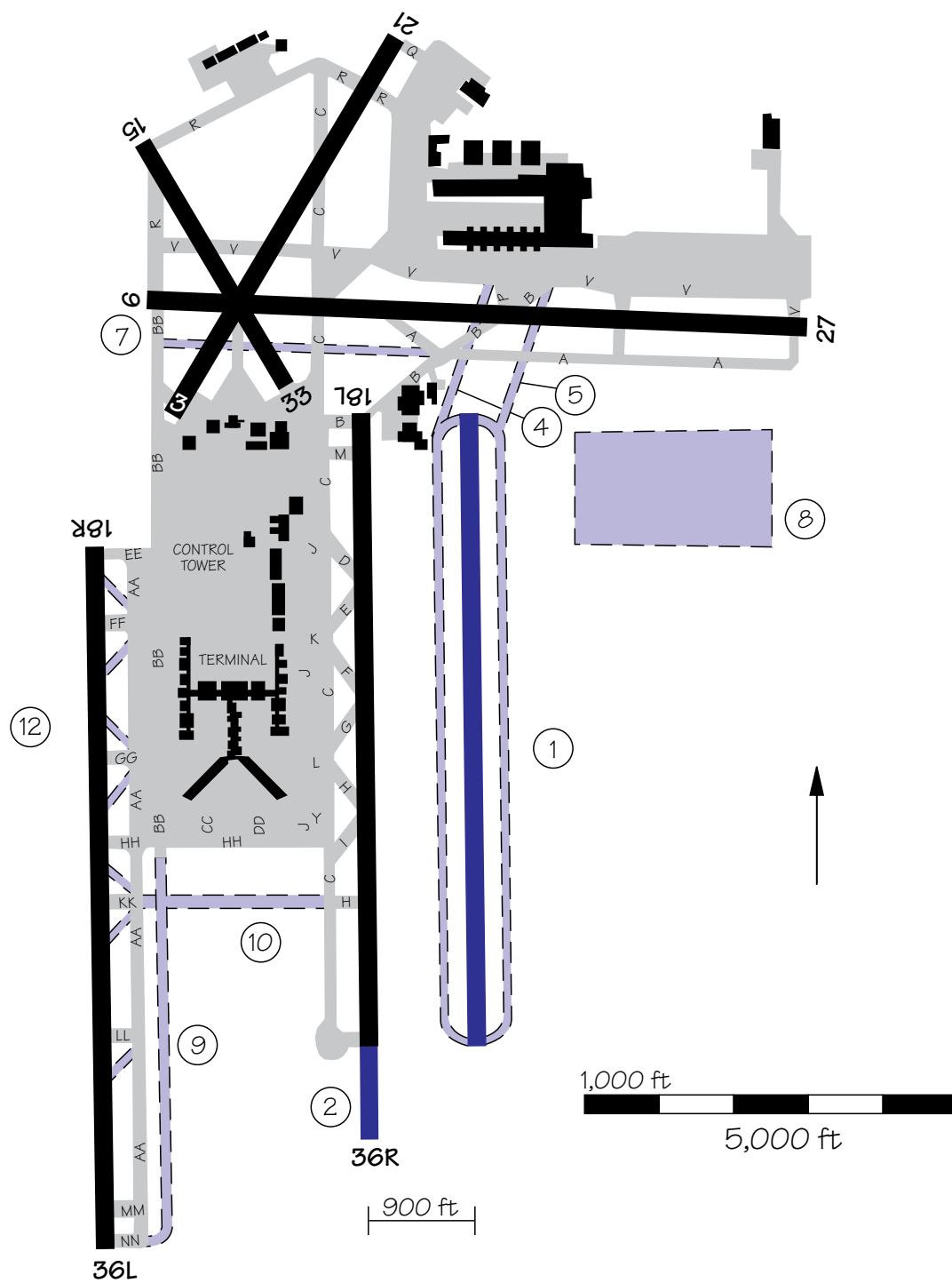
1. Construct departure pads (staging areas) at ends of runways
2. Construct new gates west side of Tom Bradley International Terminal (TBIT)
3. Construct 11-gate domestic terminal (east of Sepulveda) and 24-gate international terminal on the west end
4. West end development
  - 4a. Construct 24 remote gates (no terminal) for domestic and international operations
  - 4b. Construct 24-gate passenger terminal for domestic and/or international operations
5. Extend Taxiway K to the east
6. Construct high-speed Taxiway 43
7. Extend Taxiways 48 and 49 to Taxiway F

### Facilities and Equipment Improvements

8. Construct new air traffic control tower
9. Upgrade ILS on Runway 25L to CAT III

### Procedures Improvements

10. Taxi aircraft versus towing from remote parking areas to gates
  11. Restructure Los Angeles Basin airspace
-



# Memphis International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Construct Runway 18E/36E, dual departures
2. Construct Runway 18E/36E, triple departures in VFR-1
3. Construct Runway 18E/36E, triple departures in all weather conditions (waiver required)
4. Extend inner parallel taxiway north to Taxiway V
5. Extend outer Taxiway P north to Taxiway V
6. Extend Runway 18L/36R south
7. Extend Taxiway A from B to BB
8. Large freight ramp, east of Runway 18E, south of Runway 27
9. Extend Taxiway BB to approach end of Runway 36L
10. New crossover Taxiway KK, south of Taxiway HH
11. Terminal expansion
12. Angled exits on Runway 18R/36L (reduce occupancy times by 10%)

### Facility and Equipment Improvements

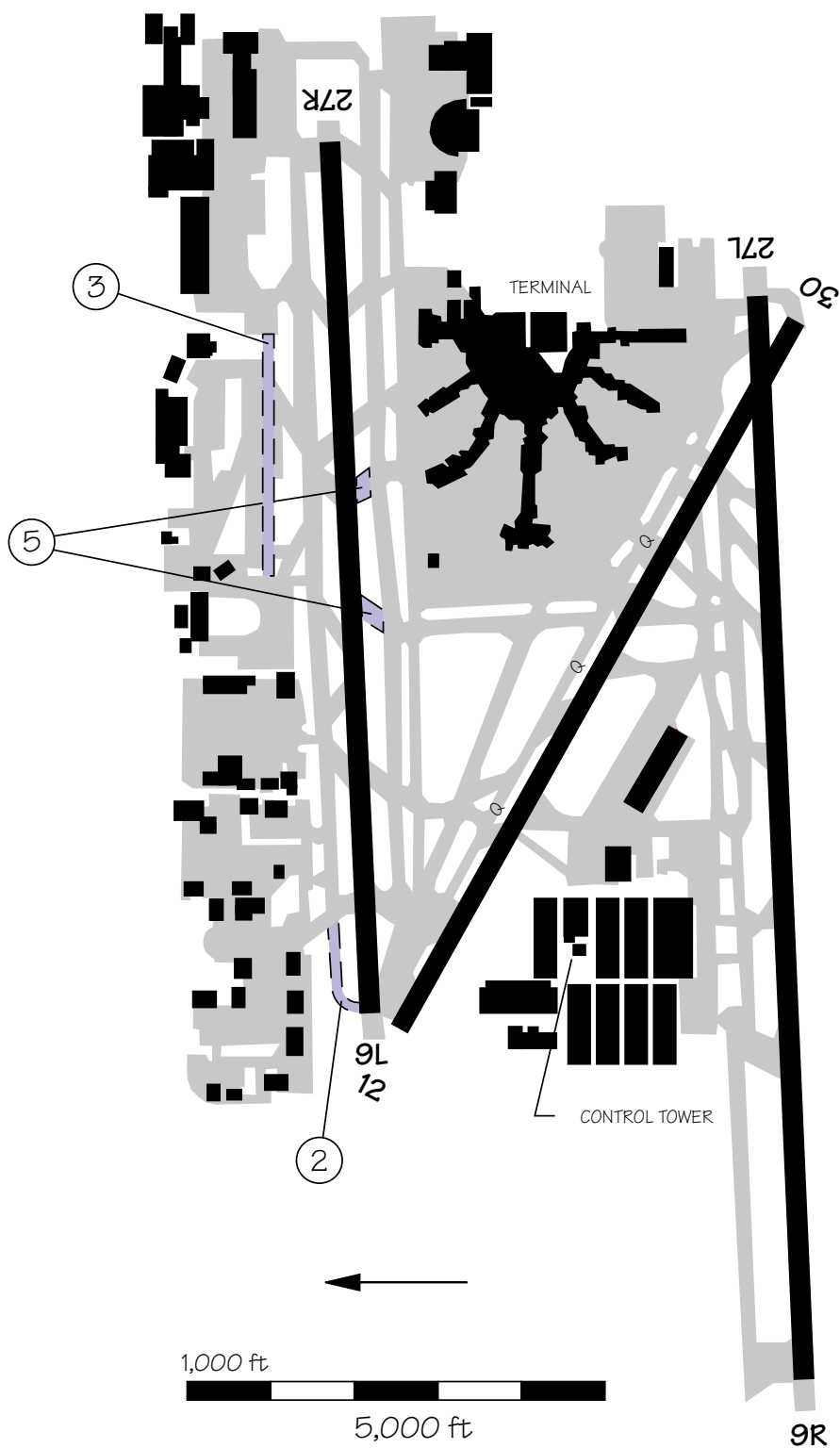
13. CAT II/III ILS on Runway 36R
14. CAT II/III ILS on Runway 36E
15. CAT II/III ILS on Runways 18R, 18L, and 18E
16. Install Airport Surface Detection Equipment (ASDE)
17. Re-route high altitude traffic away from MEM VORTAC

### Operational Improvements

18. Reduce longitudinal spacing to 2.5 nm between similar class, non-heavy arrivals
19. Reduce lateral spacing (simultaneous ILS approaches to existing parallels)
20. Small aircraft hold short of Runways 3/21 and 15/33 when landing Runway 27 (regardless of wind)
21. 1.5 mile staggered ILS approach to existing parallels
22. Relief from airspace criteria

### User Improvements

23. Reduce small-slow aircraft by 10 %; by 25 %
  24. Uniformly distribute traffic within the hour
  25. Increase GA forecast by 20%
  26. Relocate Air Guard off airport
-



# **Miami International Airport Capacity Design Team Project Summary**

## **Recommendations**

### **Airfield Improvements**

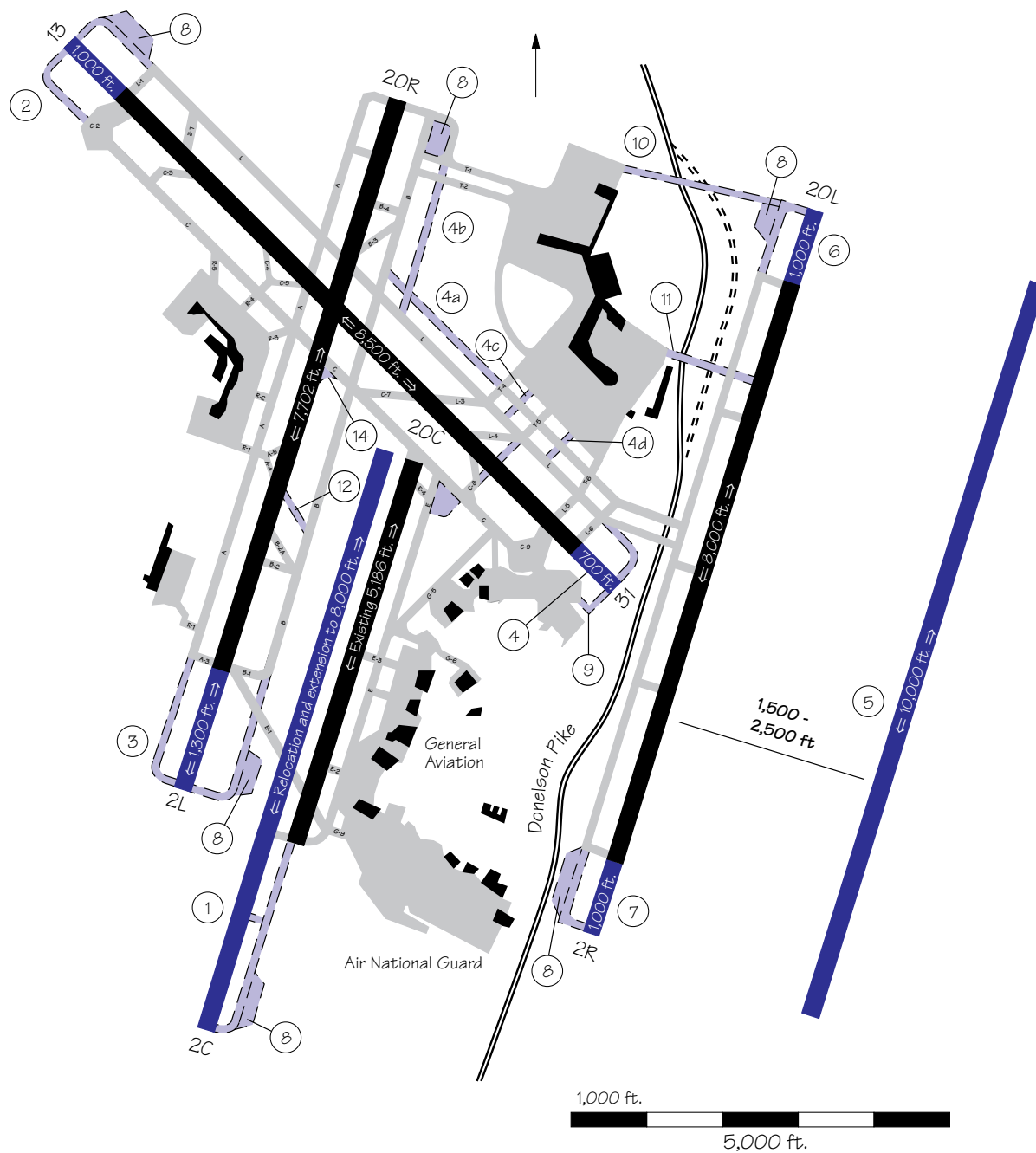
1. Dual taxiway around Concourse H (remove 2 end gates)
2. Extend Taxiway L to Runway 9L end
3. Construct new partial dual Taxiway K
4. Develop improved exits for Runway 9L/27R northside
  - 4a. Strengthen/reconstruct Runway 9L/27R
5. Improve Exits M4 and M5 on Runway 9L/27R

### **Facility and Equipment Improvements**

6. CAT II on Runway 9L
7. CAT II on Runway 9R
8. Install touchdown and midpoint RVRs on Runway 9R
10. Glideslope, MALSR, and middle marker on Runway 30
11. ASDE
12. Benefits of MLS
13. Install midpoint and rollout RVRs on Runway 9L

### **Operational Improvements**

14. Independent converging IFR approaches to Runways 12 and 9R
  15. Independent converging IFR approaches to Runways 27R and 30
  16. 2.5 mile in-trail longitudinal approach separation (IFR)
-





# Nashville International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

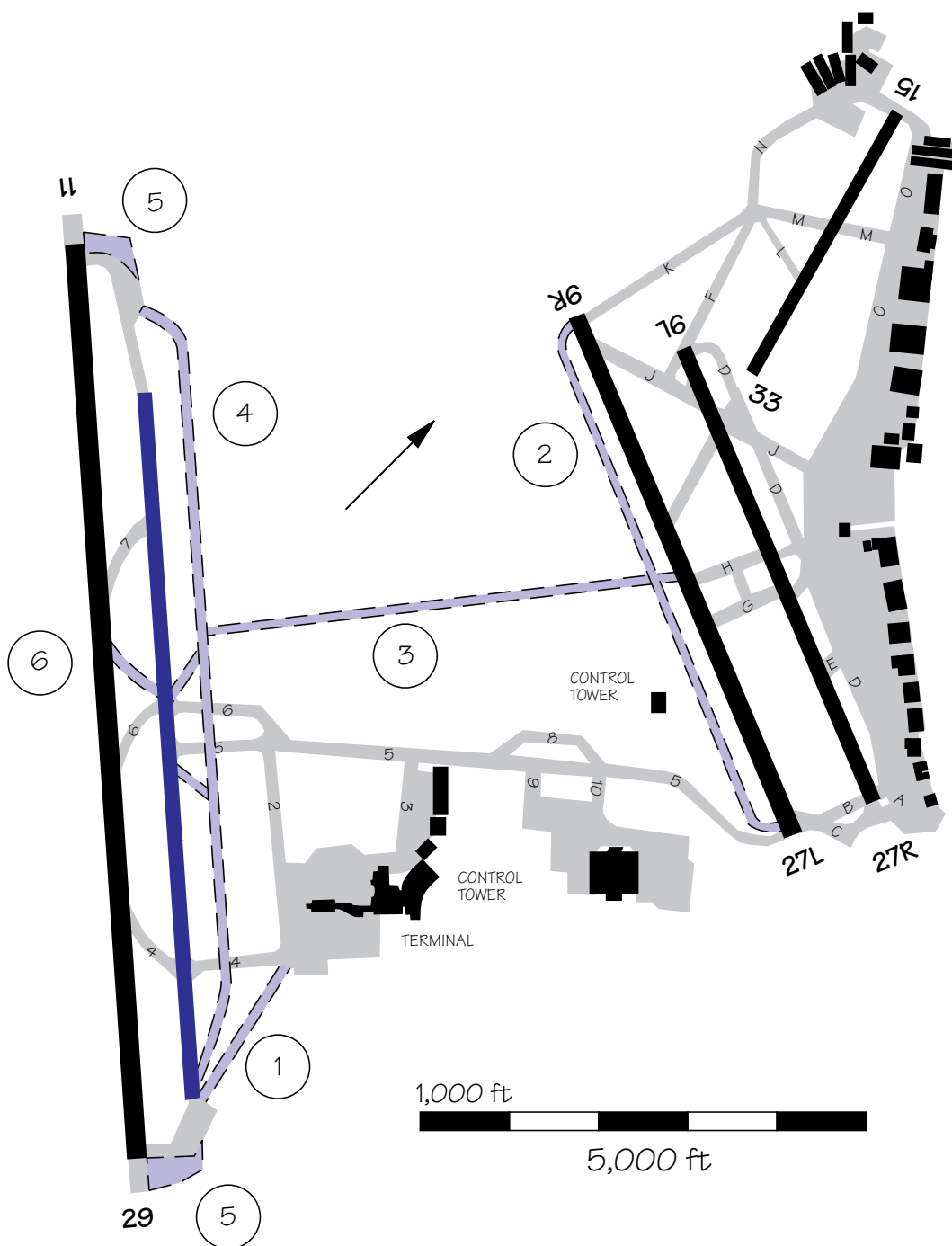
1. Relocate Runway 2C and extend to 8,000 ft
2. Extend Runway 13 to the northwest
3. Extend Runway 2L 1,300 ft. or more to the south
4. Improve terminal taxiways and ramp
  - 4a. Extend Taxiway I
  - 4b. Extend Taxiway B hold
  - 4c. Construct dual lane at Taxiway T-4
  - 4d. Construct dual lane at Taxiway T-6
5. Construct new Runway 2E/20E 1,500 to 3,000 ft. east of existing Runway 2R/20L
  - 5a. Less than 2,500 ft. east of Runway 2R/20L
  - 5b. 2,500 ft. east of Runway 2R/20L (dependent)
6. Extend existing Runway 20L 1,000 ft. north
7. Extend existing Runway 2R 1,000 ft. south
8. Construct holding (departure sequencing) pads on all runway ends (bypass capability)
9. Construct taxiway from GA area to Runway 31 departure end
10. Construct crossover taxiway from ramp to Runway 20L
11. Construct connecting taxiway from Concourse D to Runway 2R/20L
12. Construct new exit for commuters east off Runway 20R at 5,000 ft
13. Expand existing terminal
14. Round off fillet at Taxiway C and Runway 2L

### Facilities and Equipment Improvements

15. Upgrade ILS on all existing and future runways
16. Install wake vortex advisory system

### Operational Improvements

17. Encourage GA use of reliever airports
  18. Conduct IFR dependent converging approaches to Runways 13 and 20L
  19. Conduct an airspace capacity design project and re-structure terminal and en route airspace
    - 19a. Evaluate airspace restrictions
    - 19b. Revise low-altitude airway structure
  20. Establish a terminal control area (TCA)
-



# **Oakland International Airport Capacity Design Team Project Summary**

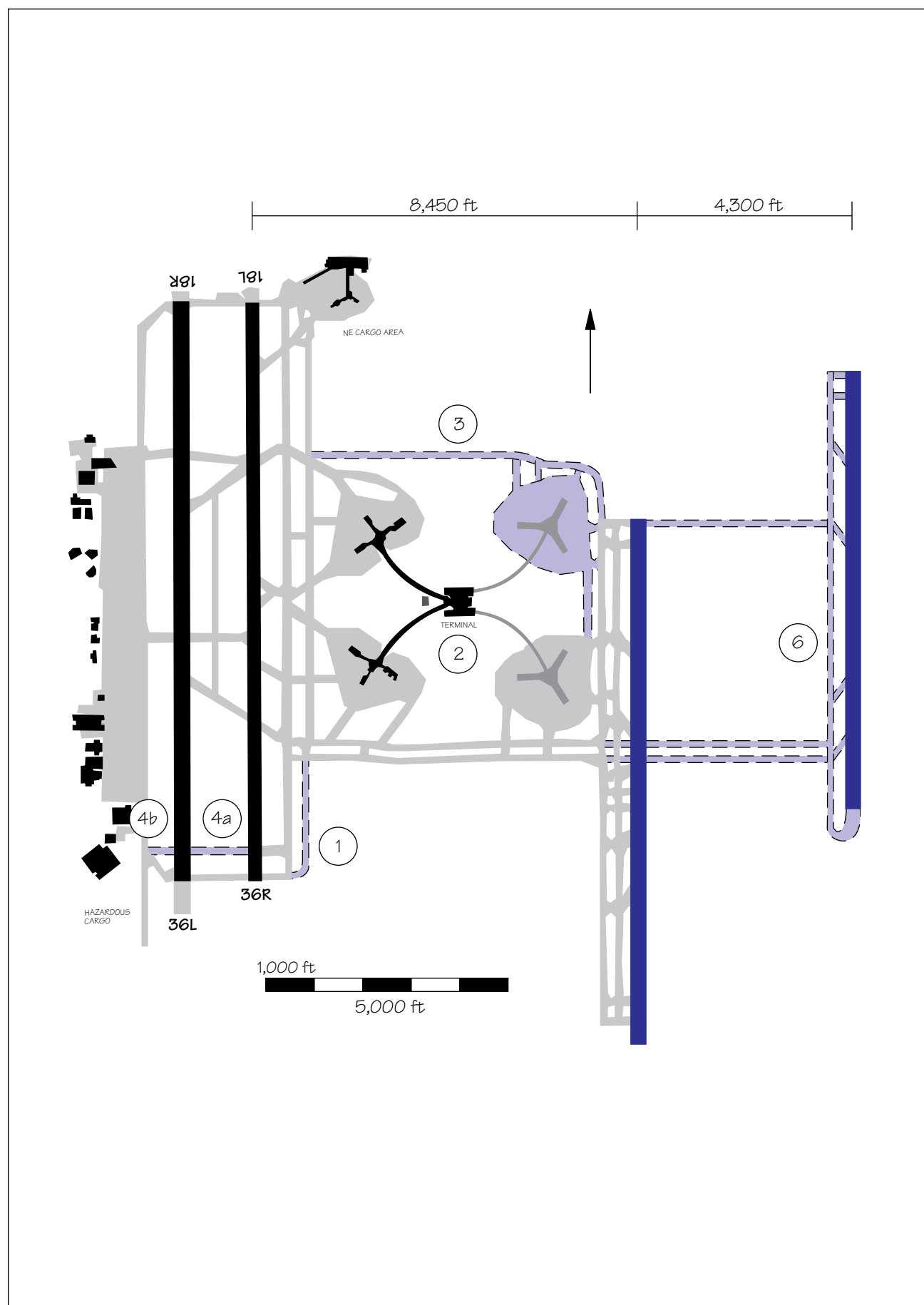
## **Recommendations**

### **Airfield Improvements**

1. Construct taxiway from southeast corner of terminal to Runway 29 approach threshold
2. Build taxiway parallel to Runway 27L
3. Add taxiway between north and south complexes
4. Convert Taxiway 1 to air carrier Runway 29 and add parallel taxiway
5. Enlarge staging pads at entrances to Runway 11/29
6. Construct additional angled exit off Runway 11
7. Build penalty box on south side of approach end of Runway 29

### **Facilities and Equipment Improvements**

8. Install MLS on Runways 29 and 27
  9. Install a non-directional beacon approach to Runway 29
-



# Orlando International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Extend Taxiway C to threshold of Runway 36R
2. Construct new heliport
3. Construct north crossfield taxiway
- 4a. Construct new Taxiway B9 from Runway 36R to Runway 36L
- 4b. Construct new Taxiway B9 from Taxiway A to threshold of Runway 36L
5. Construct staging areas on all runways
6. Construct fourth runway and associated taxiways

### Facilities and Equipment Improvements

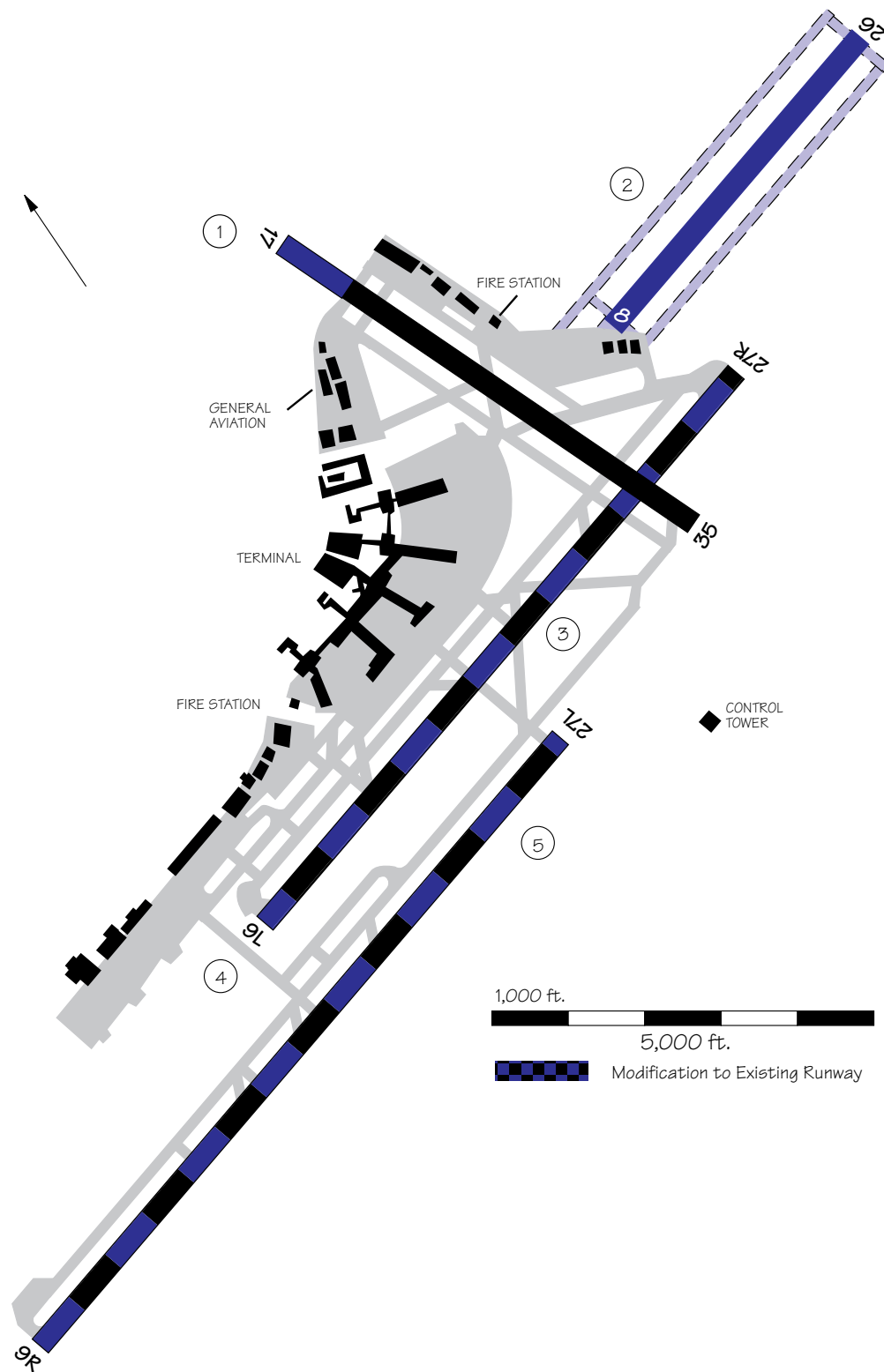
7. Install VOR at OIA
- 8a. Install CAT III ILS on Runway 18R
- 8b. Install CAT III ILS on all runways
9. Install ASDE
10. Install PRM

### Operational Improvements

11. Implement ramp control by users
12. Implement triple parallel approaches (four-runway configuration using PRM)
13. Modifications to terminal airspace
14. Restructure airways
15. Use ground crossovers versus air crossovers
16. Segregate GA and helicopter operations from turbojets

### User Improvements

17. Encourage GA use of alternative airports by providing new east and west reliever airports



# Philadelphia International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Extend Runway 17/35 600 ft. to the north
2. Construct new 5,000-ft commuter Runway 8/26 3,000 ft. north of Runway 9R/27L
3. Relocate Runway 9L/27R (laterally) 400 ft. to the south with associated parallel and apron taxiways
4. Relocate Runway 9L/27R (longitudinally) 2,735 ft. to the west
5. Relocate Runway 9R/27L (longitudinally) 1,000 ft. to the east.

### Facilities and Equipment Improvements

6. Install localizer directional aid (LDA) on Runways 9L and 27L
  - 6a. LDA approach to Runway 27L with ILS arrivals on Runway 27R
  - 6b. LDA approach to Runway 9L with ILS arrivals on Runway 9R
7. Install Precision Runway Monitor (PRM)

### Operational Improvements

8. Allow restricted air carrier use on Runway 17/35 with arrivals on Runway 35 and departures on Runway 17
  9. Implement preferential taxiway routing
  10. Conduct dependent instrument approaches to Runways 27L and 17
  11. Conduct dependent instrument approaches to Runways 27R and 17
  12. Implement a steep-angle MLS approach to Runway 27L
  13. Conduct an airspace capacity design project and re-structure terminal airspace
    - 13a. Remove departure fix restrictions
    - 13b. Install terminal ATC automation (TATCA) enhancements
-





# Phoenix-Sky Harbor International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Construct new Runway 8S/26S south of Runway 8R/26L with associated taxiways
2. Construct holding aprons at two runway ends
3. Widen fillets at Taxiways C5 and C7 off of Runway 8R/26L
4. Holding area southeast of Terminal 3
5. New angled exit off of Runway 8R/26L to Taxiway C
6. New angled exit off of Runway 8S/26S to Taxiway D
7. Second midfield crossover Taxiway Y adjacent to Taxiway X
8. Crossover Taxiway W and associated taxiways at approach ends of Runway 26R and Runway 26L
9. Crossover Taxiway Z from Taxiways B3 to C3
10. Construct Terminal 4 and remove Terminal 1
- 11a. Extend Taxiway A to end of Runway 26R
- 11b. Extend Taxiway D to end of Runway 26L
12. Complete northside taxilane (parallel to and north of Taxiway C)
13. Relocation of 161st Air Refueling Group

### Facilities and Equipment Improvements

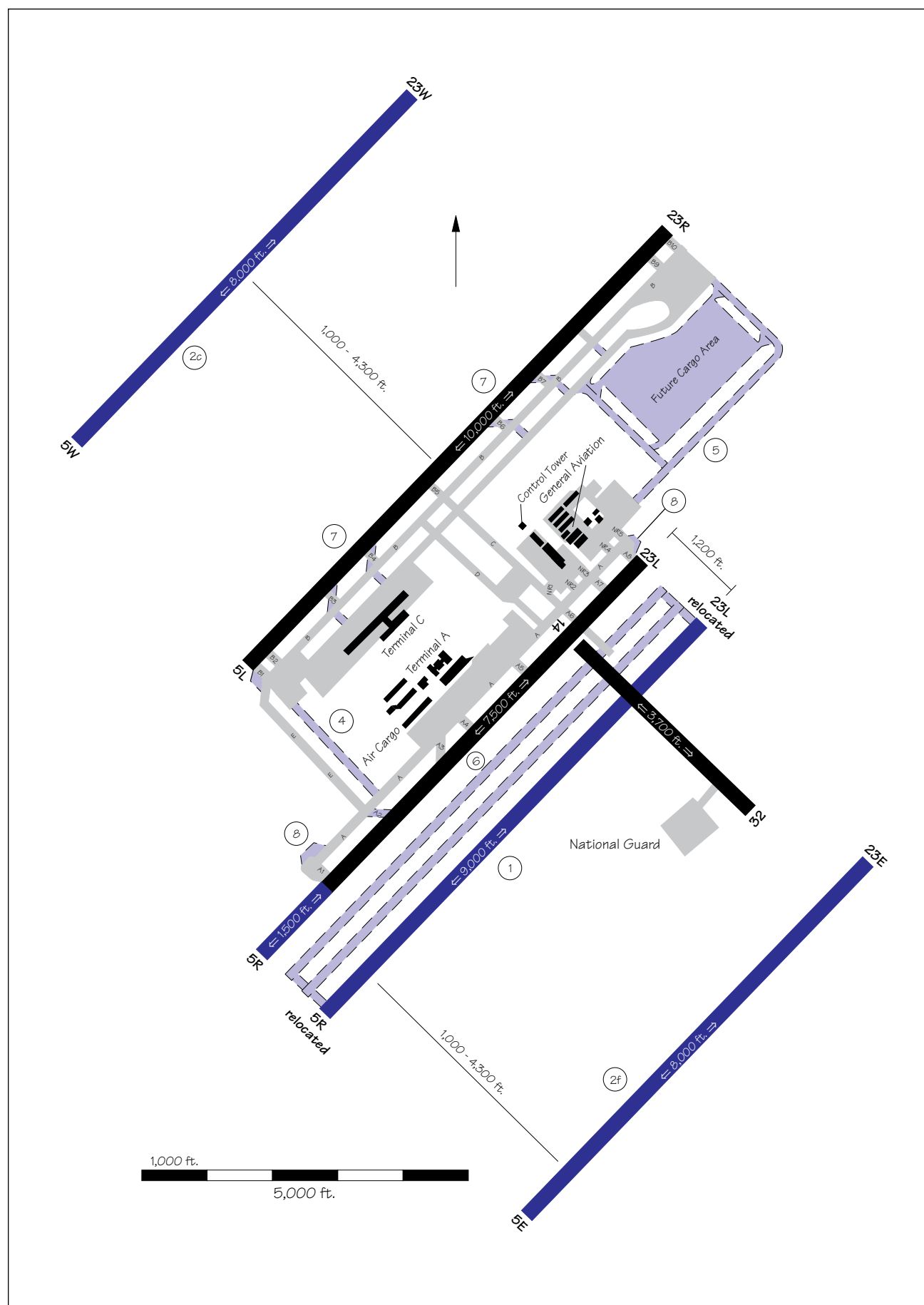
14. TVOR/VORTAC (Carefree) in northern valley
15. ILS (CAT I) for Runway 26R
16. Precision approach for Runway 8L
17. Precision approach for Runway 8S/26S
18. Potential benefits of MLS at Sky Harbor
19. VORTAC near airport

### Operational Improvements

20. Reduce in-trail separations to 2.5 miles
21. Reduce runway occupancy times
22. IFR dependent parallel approaches
23. IFR independent parallel approaches
24. Segregate fast and slow aircraft
25. Reduce arrival to intersection departure separation
26. Reduce in-trail departure restrictions to allow simultaneous departures
27. Reduce noise restrictions to utilize special turboprop corridors

### User Improvements

28. Uniformly distribute scheduled commercial operations within the hour
  29. Provide attractive alternative facilities for GA at other airports
  30. Pilot education for reduced runway occupancy times
-



# Raleigh-Durham International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

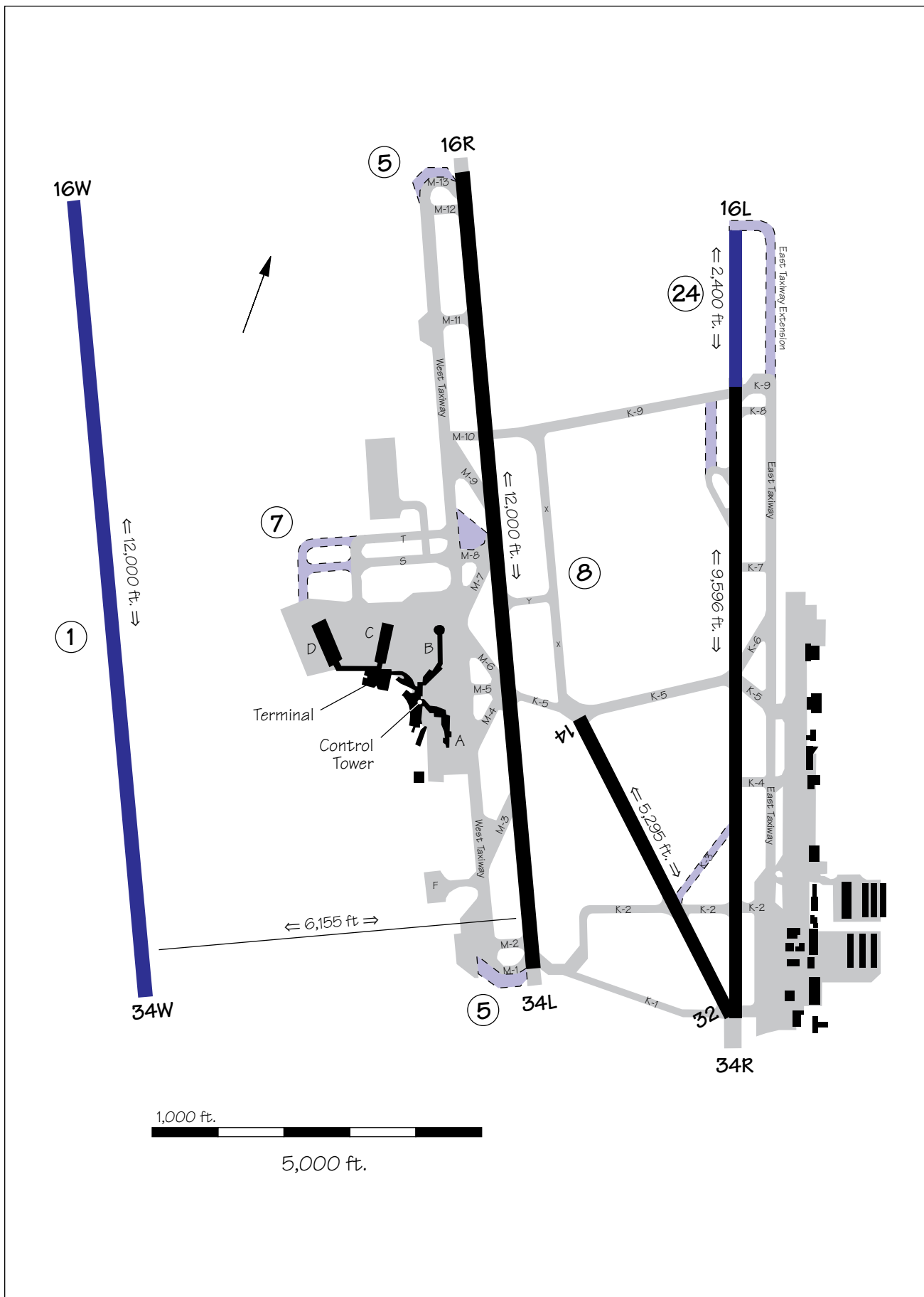
1. Relocate Runway 5R/23L 1,200 ft. southeast and extend to 9,000 ft. in length
2. Construct new 8,000 ft. third parallel Runway 5W/23W  
**Runway 5W/23W**
  - 2a. 1,000 to 2,400 ft. from Runway 5L/23R
  - 2b. 2,500 ft. from Runway 5L/23R
  - 2c. 3,000 to 4,300 ft. from Runway 5L/23R**Runway 5E/23E**
  - 2d. 8,000 ft. runway 1,000 to 2,400 ft. from relocated Runway 5R/23L
  - 2e. 8,000 ft. runway 2,500 ft. from relocated Runway 5R/23L
  - 2f. 8,000 ft. runway 3,000 to 4,300 ft. from relocated Runway 5R/23L
3. Construct new fourth parallel Runway 5E/23E (assumes Runway 5W/23W in place)
  - 3a. Triple independent/dependent arrivals
  - 3b. Triple independent arrivals
4. Construct dual parallel taxiway near feeder Taxiway E
5. Construct taxiway from new cargo complex to Runway 5R/23L
6. Construct full-length dual parallel taxiways for Runway 5R
7. Construct angled exits on Runway 5L/23R
8. Expand holding and sequencing pads and bypass taxiways on Runway 5R/23L and all future runways

### Facilities and Equipment Improvements

9. Install CAT II/III ILS on existing and future runways
10. Install runway visual range (RVR) on Runway 23L and future runways
11. Install wake vortex advisory system
12. Install airport surface detection equipment (ASDE)

### Operational Improvements

13. Implement staggered approaches with 1.5 nm separation
  14. Implement independent approaches to existing runways (Precision Runway Monitor (PRM))
  15. Implement 2.5 nm spacing between similar class, non-heavy aircraft arrivals in IFR
  16. Establish a terminal control area (TCA)
  17. Study noise abatement procedures
  18. Conduct an airspace capacity design project and restructure terminal and en route airspace
-



# Salt Lake City International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Construct a parallel runway to the west with independent IFR capability (CAT III ILS on both ends)
2. Taxiway to Delta Air Lines hangar
3. Relocate tower
4. Revised taxiway exit layout
5. Construct staging areas for Runway 16R/34L at runway entrances
6. Terminal expansion
7. Extend Taxiways S and T to west boundary of the terminal ramp
8. Rehabilitate Taxiways X and Y
9. Improve aircraft access to cargo facilities

### Facilities and Equipment Improvements

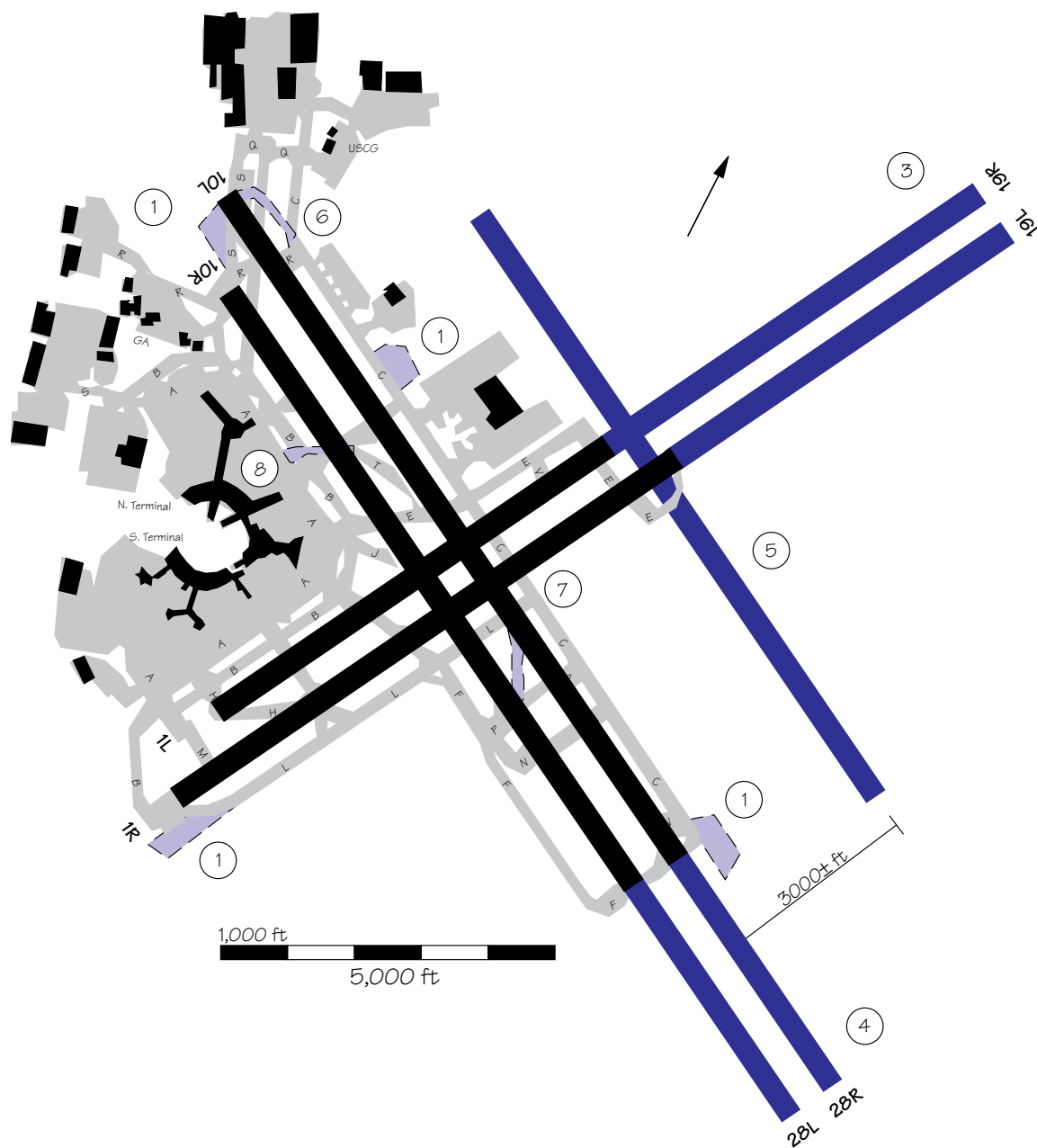
10. CAT I ILS on Runway 34R
11. LDA approach to Runway 34R
12. CAT III ILS on Runway 16R
13. Install Precision Runway Monitor (PRM)
14. Install Microwave Landing System (MLS)
15. Install runway visual range (RVR) equipment on Runway 34R
16. Install Airport Surface Detection Equipment (ASDE)
17. Install taxiway centerline lights

### Operational Improvements

18. Make Bonneville routing one-way
19. Reduce in-trail arrival separation standard to 2.5 nm (like class aircraft only)
20. IFR independent converging approaches

### User Improvements

21. Reduce runway occupancy times through pilot education (10%, 20%, or 30% runway occupancy time reduction)
  22. Improve reliever airports (reduce general aviation operations by 10%, 20%, or 30%)
  23. Delta Air Lines ramp control tower
-



# San Francisco International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Create holding areas near Runways 10L, 10R, 1R, and 28R
2. Improve noise barrier for Runway 1R
3. Extend Runway 19L/19R
4. Extend Runway 28L/28R
5. Construct independent parallel Runway 28
6. Extend Taxiway C to threshold of Runway 10L
7. Create high speed exit from Runway 10L between Taxiways L and P
8. Extend Taxiway T to Taxiway A

### Air Traffic Control Improvements

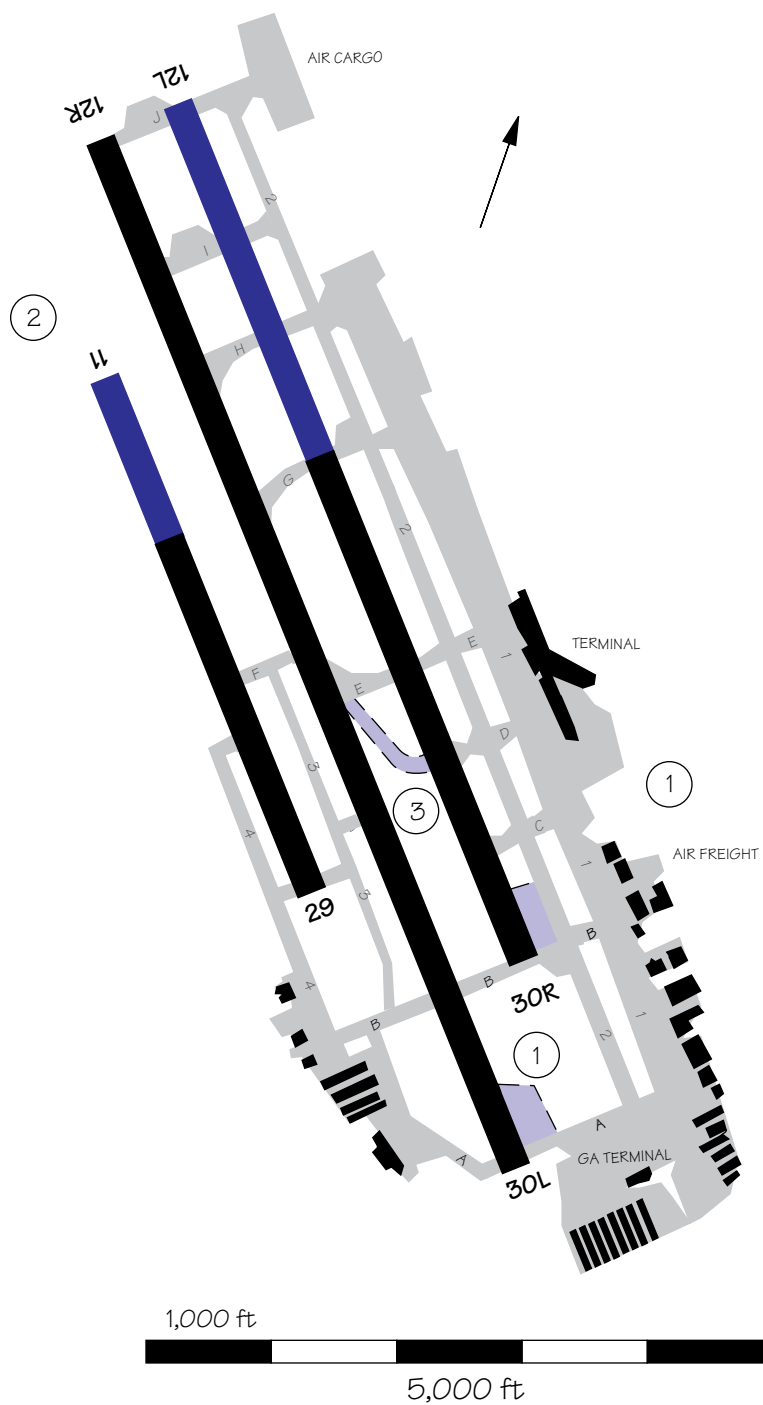
9. Expand visual approach procedures
10. Offset instrument approach to Runway 28R
11. Use staggered 1-mile divergent IFR departures on Runway 10L/10R

### Facilities and Equipment

12. Install Microwave Landing System (MLS) on Runways 28 and 19

### User Improvements

13. Taxi aircraft across active runways instead of towing
  14. Distribute airline traffic more evenly among three airports
  15. Distribute traffic uniformly within the hour
  16. Divert 50% general aviation to reliever airports
-





# **San Jose International Airport Capacity Design Team Project Summary**

## **Recommendations**

### **Airfield Improvements**

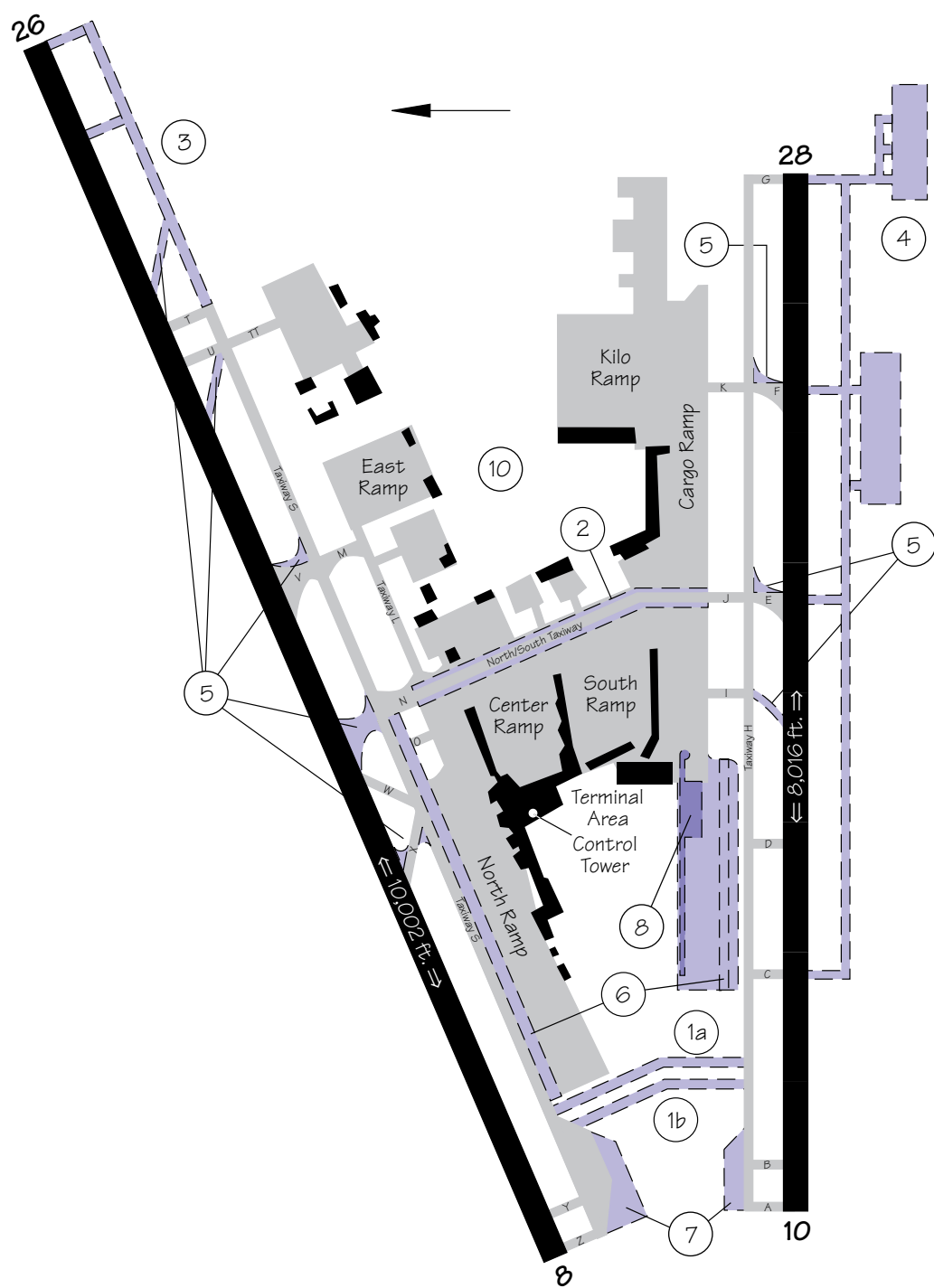
1. Create staging area at Runway 30L
1. Create staging area at Runway 30R
2. Extend and upgrade Runway 11/29
  - 2a. Extension of Runway 30R
3. Create angled exits for Runway 12R

### **Facilities and Equipment Improvements**

4. Promote use of reliever ILS training facility
5. Install MLS on Runway 30L

### **Air Traffic Control Improvements**

6. Implement simultaneous departure with Moffett Field
-



# San Juan Luis Muñoz Marín International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Construct new north/south taxiway complex at the west end
  - 1a. Single one-way taxiway
  - 1b. Two-directional taxiway
2. Expand existing north/south taxiway to provide two-directional capability
3. Extend Taxiway S
4. Construct new ramp area on south side of airport
5. Construct new/improve existing exits on Runways 8 and 10
6. Expand existing Taxiways S and H to dual taxiways adjacent to north and south ramps
7. Construct holding pads (staging areas) on Runways 8 and 10
  - 7a. With three hold positions
  - 7b. With five hold positions
8. Construct new international passenger terminal

### Facilities and Equipment Improvements

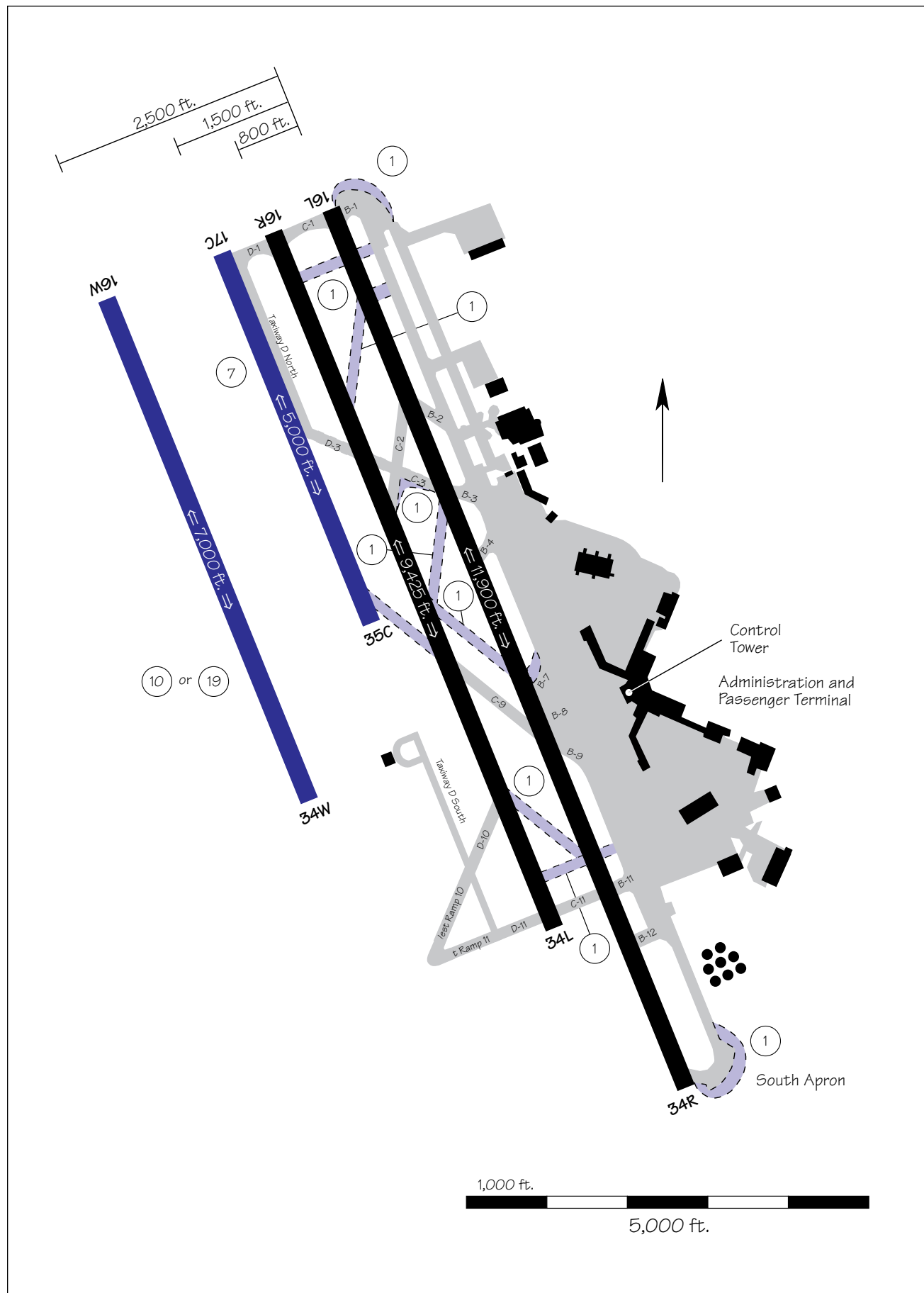
9. Upgrade VOR to include doppler
10. Construct new air traffic control tower
11. Install wake vortex advisory system
12. Install terminal ATC automation (TATCA) enhancements
13. Install improved approach aids on Runway 26
  - 13a. Install Precision Approach Path Indicator (PAPI)

### Operations Improvements

14. Implement improved oceanic separations (no fix restrictions)
15. Use 2.5 nm separations on final approach
16. Unrestricted use of Runway 10

### User Improvements

17. Remove military operations
  18. Enhance general aviation (GA) reliever airports and reduce GA activity by 50 %
-



# Seattle-Tacoma International Airport Capacity Design Team Project Summary

## Recommendations

### Improvements to Existing Airfield

1. Improved exit and taxiway construction
2. Reduce in-trail spacing to 2.5 nm
3. CAT I ILS on Runway 16L (IFR-1)
4. LDA approach to Runway 16L/34R and ILS to Runway 16R/34L
5. Noise abatement effect on departures
6. Install wake vortex advisory system

### New Runway Improvements

#### Commuter Runway

7. Commuter Runway 17C/35C (converted Taxiway D)
8. LDA to Runways 17C/35C and ILS to Runway 16L/34R
9. Install wake vortex advisory system

#### Dependent Runway

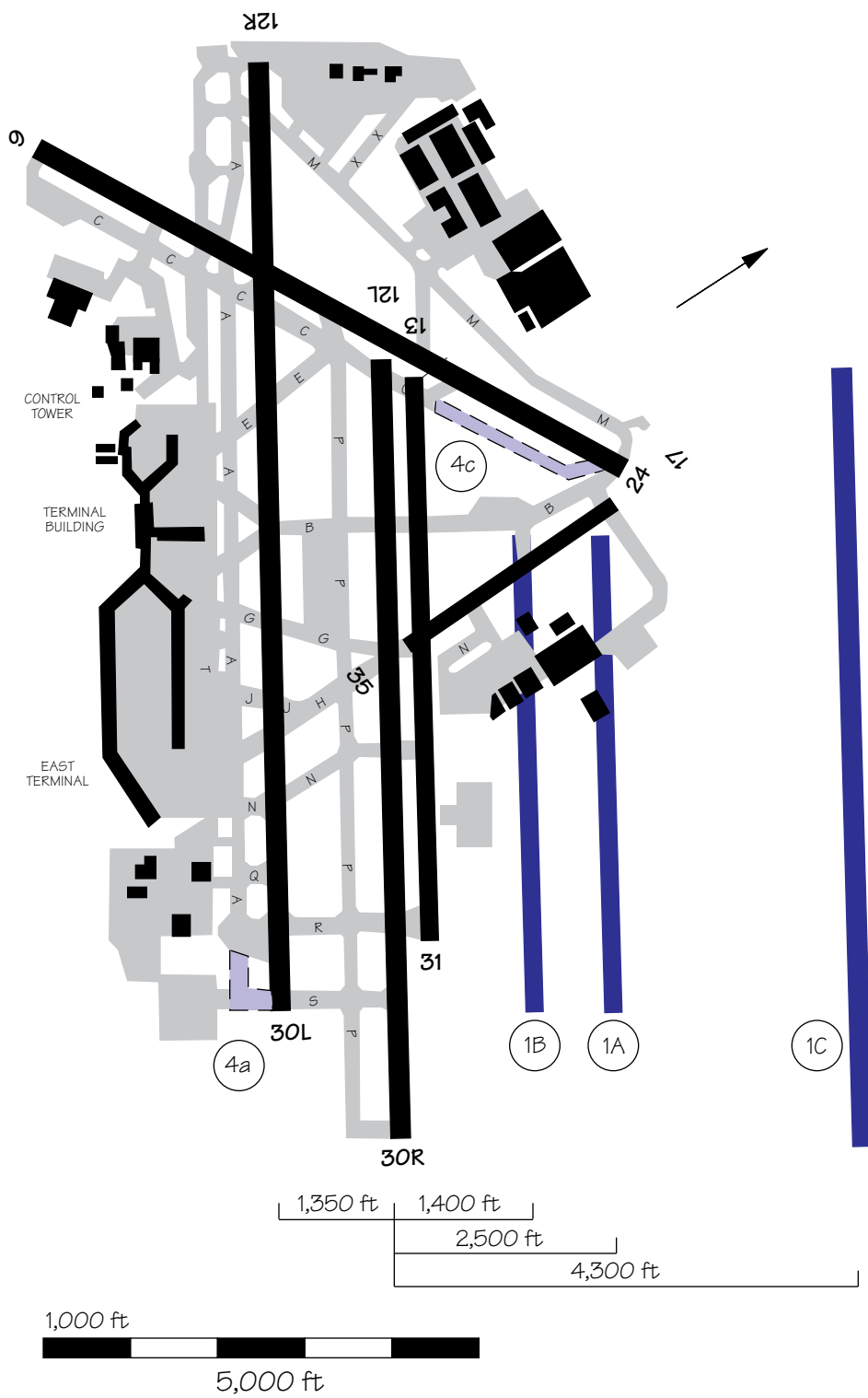
10. Air carrier (dependent) Runway 16W/34W
11. LDA approaches to Runway 16W/34W
12. CAT I ILS on Runway 16W (IFR-1)
13. CAT II ILS on Runway 16W (over CAT I)
14. CAT I ILS on Runway 34W (IFR-1)
15. Staggered approaches to Runways 16L/16W and 34R/34W - 2.0 nm stagger
16. Staggered approaches to Runways 16L/16W and 34R/34W - 1.5 nm stagger
17. Operate Runway 16R/34L as primary runway versus Runway 16L/34R with Runway 16W/34W
18. Install wake vortex advisory system

#### Independent Runway

19. Air carrier (independent) Runway 16W/34W
20. CAT II on Runway 16W (only)

### Demand Management

21. Uniformly distribute scheduled commercial operations
-



# Lambert-St. Louis International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. New runway parallel to Runway 12L/30R
  - 1a. Alternate 1: new independent commuter runway 2500' from Runway 12L/30R
  - 1b. Alternate 2: new dependent commuter runway 1400' from Runway 12L/30R
  - 1c. Alternate 3: new independent air carrier runway parallel to Runway 12L/30R
2. Convert Taxiway F to VFR Runway 13/31
3. Angled exits on Runway 12L/30R
4. Taxiway extensions
  - 4a. Extend Taxiway A south to end of Runway 30L
  - 4b. Extend Taxiway P from Taxiway C to Taxiway M
  - 4c. Extend Taxiway C from Taxiway F to end of Runway 24
5. Realign Taxiway B off Taxiway A to Runway 12R/30L
6. Establish queuing areas to various runway ends
7. Relocate cargo area
8. Relocate mid coast aviation to northeast

### Facilities and Equipment Improvements

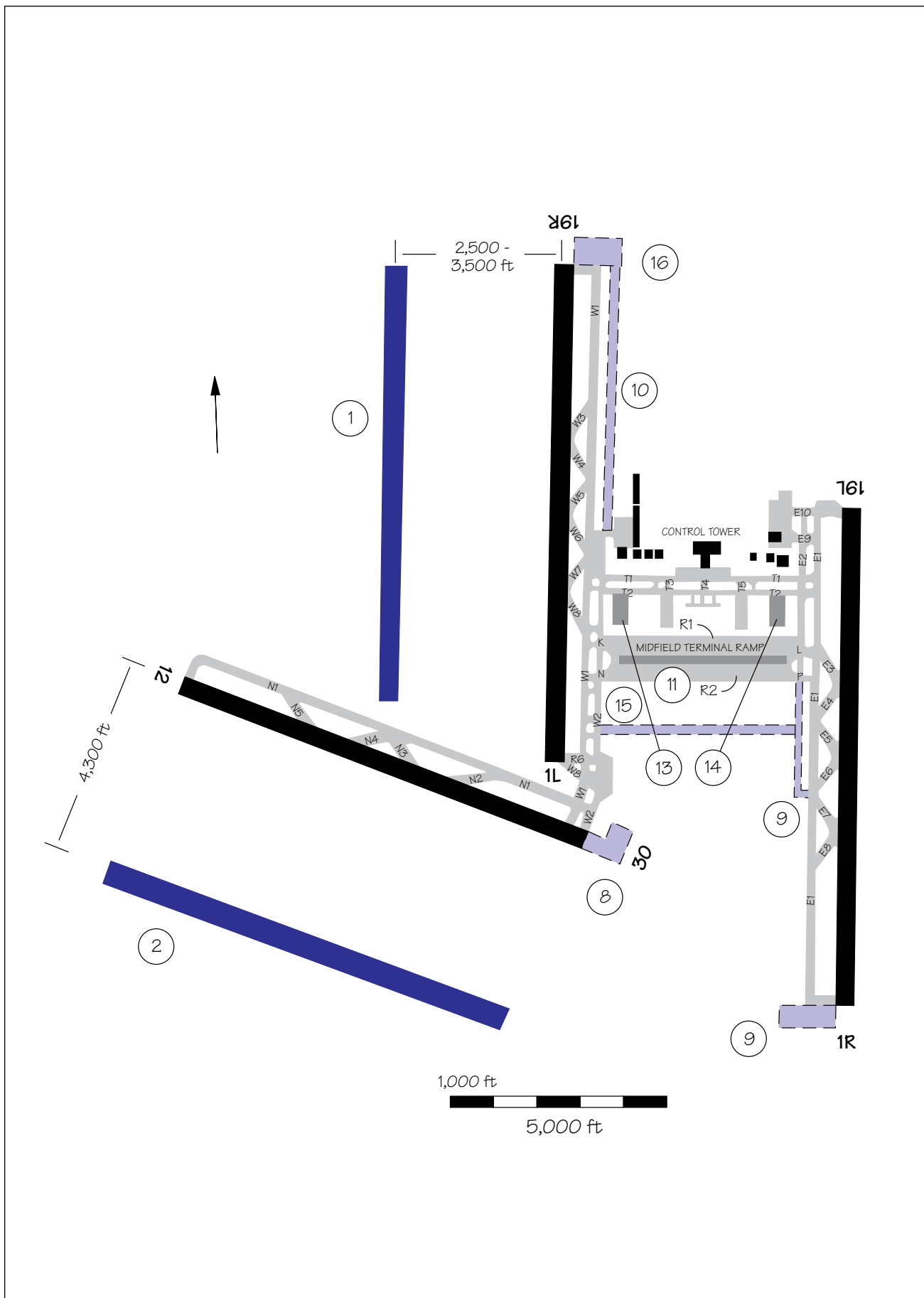
9. Install marker lights and parking lanes in center field remote holding area
10. Install wake vortex advisory system
11. Install CAT III ILS to reduce approach minima on Runways 12L and 12R
12. IFR approaches with additional instrumentation on Runway 6
13. IFR approaches with additional instrumentation on Runway 24
14. LDA approaches support
  - 14a. Equipment installation on Runway 30L
  - 14b. Equipment installation on Runway 12L
15. Install light systems at taxiway and runway intersections
16. Install ASDE

### Operational Improvements

17. Reduce IFR parallel approach stagger to 2 nm
18. Reduce IFR in-trail separations to 2.5 nm
19. Converging IFR approaches to
  - 19a. Runways 6 and 30R
  - 19b. Runways 6 and 30L
20. Converging IFR approaches to
  - 20a. Runways 24 and 30R
  - 20b. Runways 24 and 30L
21. Simultaneous approaches to ILS Runway 30R, LDA Runway 30L, and ILS Runway 24

### User Improvements

22. Change fleet mix
    - 22a. Relocate GA 25%
    - 22b. Relocate GA 50%
    - 22c. Relocate GA 75%
  23. Distribute scheduled commercial operations within the hour
  24. Relocate Air National Guard
-





# Washington Dulles International Airport Capacity Design Team Project Summary

## Recommendations

### Airfield Improvements

1. Construct Runway 1W/19W 3,500 ft west of Runway 1L/19R
2. Construct Runway 12R/30L south of Runway 12/30
3. Widen turnback fillets on Runway 1L (at Exits W-3, W-5)
4. Widen turnback fillets on Runway 19L (at Exits E-6, E-8) (not pictured)
5. Complete construction of east/west Taxiway R-2
6. Add GA exits to Runways 19R (north of Exit W-3) and 19L (north of Exit E-3)
7. Extend Runway 12/30 southeast and enlarge Runway 30's holding pads
8. Add Runway 1R holding pad and extend Taxiway E-2 south (to south of Exit E-7)
9. Runway 19R staging improvements: extension of Taxiway W-2 north, Runway 19R holding pad, and Runway 19R bypass taxiway
10. Add midfield ramp
11. Add centerfield north/south taxiway
12. Midfield Terminal — Phase 1A (24 gates)
13. Midfield Terminal — Phase 1B (48 gates)
14. Add east/west Taxiway R-3, south of R-2, with 2 north/south stubs
15. Additional FBO, east of Runway 19R threshold

### Facilities and Equipment Improvements

16. Touchdown RVR and touchdown zone lights on Runway 1L
17. Touchdown RVR and centerline lights on Runways 12 and 30 and touchdown zone lights on Runway 12

### Operational Improvements

18. Simultaneous ILS approaches to existing parallel runways
19. Simultaneous converging instrument approaches to Runways 12 and 19R or 12 and 19L
20. 2.5 nm longitudinal spacing inside outer marker (between similar class, non-heavy arrivals)

### User Improvements

21. Redistribute traffic more uniformly within the hour
  22. Improve reliever airports: reduce small-slow aircraft by 25%; by 50%
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